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**MONTHLY PRECIPITATION AND RUNOFF  
FOR  
SMALL AGRICULTURAL WATERSHEDS  
IN THE  
UNITED STATES**

**UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service  
Soil and Water Conservation Research Branch  
Washington 25, D.C.**

**In Cooperation with the  
STATE AGRICULTURAL EXPERIMENT STATIONS**

**June 1957**

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## FOREWORD

This volume is primarily a collection of basic data relating to the problem of runoff from small agricultural watersheds. It has been prepared by the Watershed Hydrology Section of the Soil and Water Conservation Research Branch as a means of furnishing basic information on monthly amounts of runoff from small experimental watersheds, together with rainfall and descriptive information, to the Soil Conservation Service, other governmental agencies, and private engineers. Various prior publications have reported results from individual watersheds or groups of watersheds; it is the aim here to present in summary form and uniform manner the data from a majority of the experimental agricultural watersheds in the United States.

The volume has been organized and assembled in loose-leaf form so that other sheets can be added as additional data become available.

Cecil H. Wadleigh, Chief  
Soil & Water Conservation  
Research Branch



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## WATERSHED DATA

The decimal system of paging is used to index the watershed data. Pages are numbered according to location and watershed number, and the data for each watershed is on two pages. For example, page 5.1-2 is location 5 (College Park, Maryland), Watershed 1 (W-1 at College Park), and page 2 of data for that watershed. Only the location number is given in this table.

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## INTRODUCTION

These volumes present monthly summaries of runoff and precipitation amounts along with physical descriptions for most of the experimental agricultural watersheds in the United States. The principal experimental watersheds not included are forested watersheds for which the U. S. Forest Service has responsibility.

### Cooperation and Acknowledgments

Over the years the establishment and operation of these experimental watershed projects have been the joint responsibility of various Federal, state, and local agencies. The Federal agencies include the Bureau of Agricultural Engineering, the Soil Conservation Service, the Bureau of Plant Industry, and the Agricultural Research Service of the Department of Agriculture, and the U. S. Geological Survey of the Department of the Interior. Throughout the life of the projects the State Experiment Stations of the 27 states within which the watersheds are located have cooperated in the planning and operation of the research projects. In several cases local agencies, such as drainage and conservancy districts, have also cooperated in the work. At each project many individuals have contributed to the planning and establishment of the watersheds and the collection, compilation, and analysis of the data. Those in the following list have made substantial contributions but this is only a partial list. In the list the project location is given first, followed by the name of the Project Supervisor in the Watershed Hydrology Section of the Agricultural Research Service who is directly responsible for the technical adequacy of the data presented for that location. Locations at which the Project Supervisor is stationed are indicated by an asterisk. A few of the many others who contributed to the success of the project are then named in alphabetical order.

1. Arnot Forest, New York - Harold W. Hobbs, E. A. Engdahl, George R. Free, David R. Gardner, Dr. John Lamb, Jr.

2. Cohocton, New York - Harold W. Hobbs, Henry R. Adams, David R. Gardner, George Gibbs, Arthur W. Harrington, Howard Hruschka, Albert N. Huff, Dr. George C. Moore, James McDonald, Asher L. McDowell, Robert J. McDowell, George Ross.

3. Dutchess County, New York - Harold W. Hobbs, Owen Boyd, Henry W. Davis, Dr. Harold E. Gray, Harold E. Klingaman, Dr. John Lamb, Jr., John J. Porter, Chauncey Stillman.

4. Freehold, New Jersey - Harold W. Hobbs, A. S. Barnhart, Gerow D. Brill, George W. Grisdale, Dr. A. C. Hawkins, Dr. Wm. H. Martin, Frank J. Moreau, Neal Munch, James J. Pellett, Granville A. Quackenbush, Arthur Roth, Harold G. Smith.

5. College Park, Maryland\* - Harold W. Hobbs, Dr. J. H. Axley, O. C. Bruce, R. W. Carpenter, Dr. R. B. Corbett, E. M. Davis, M. F. Hershberger, Dr. Wm. B. Kemp, Dr. A. O. Kuhn, Dr. G. F. Madigan, Prof. J. E. Metzger, R. L. Roberts, Jr., Dr. R. G. Rothgeb, C. S. Slater, F. W. Snyder, S. P. Stabler, Dr. R. P. Thomas.

6. Hagerstown, Maryland - Harold W. Hobbs, P. A. Anderson, J. H. Bowie, O. C. Bruce, E. M. Davis, R. T. Haas, M. F. Hershberger, T. D. Knode, Prof. J. E. Metzger, W. H. Stevenson, J. C. Tignor.

7. Auburn, Alabama - J. C. Stephens<sup>1/</sup>, W. P. Adkins, A. W. Cooper, F. A. Kumer, M. L. Nichols, D. A. Parsons, M. E. Stephens.

8. Vero Beach, Florida - J. C. Stephens, F. E. Boyer, Jr., M. H. Carolton, E. E. Carter, F. E. Cherry, J. P. Clawson, A. L. Craig, L. Johnson, J. H. Hartwell, A. O. Patterson, W. H. Speir, J. S. Telfair, Jr., W. T. Wallis.

9. Americus, Georgia - J. B. Burford<sup>2/</sup>, C. B. Austin, E. Azar, D. W. Cardwell, J. R. Carreker, R. L. Carter, C. W. Chapman, R. D. Cox, William Crnkovic, F. N. Kleckly, D. B. Krimgold, H. E. Lacy, H. B. McDonald, Lou Moelchert, C. E. Ramser, Wm. Smith, J. L. Weber.

10. Watkinsville, Georgia - J. C. Stephens, A. P. Barnett, E. B. Browne, J. R. Carreker, R. H. Driftmier, B. H. Hendrickson, F. T. Ritchie.

11. High Point, North Carolina - J. B. Burford, Woodrow Brown, W. D. Collins, R. M. Dailey, S. K. Love, Stanton McIver, C. E. Munsey, W. D. Potter, C. E. Ramser, E. R. Raney, E. A. Schlaudt, W. A. Weld, J. H. Stallings, H. J. Bragg, Wm. D. Lee, O. C. Lewis, E. C. Sease, W. W. Stevens, J. B. Watts.

12. Statesville, North Carolina - J. B. Burford, F. O. Bartel, F. G. Bell, H. H. Bennett, T. L. Copley, E. P. Deatrick, L. A. Forrest, A. D. McCall, W. D. Potter, C. E. Ramser, C. S. Slater, J. M. Snyder, M. B. Stewart, R. Y. Winters, H. J. Bragg, Wm. D. Lee, O. C. Lewis, E. C. Sease, W. W. Stevens, J. B. Watts.

13. Blacksburg, Virginia\* - J. H. Lillard, Emanuel Azar, J. B. Burford, D. W. Cardwell, G. A. Crabb, Jr., T. W. Edminster, Jessie Elson, H. N. Holtan, Louise Howard, Mrs. J. N. Jones, Jr., J. E. Moody, J. Randolph Price, Dr. H. T. Rogers, O. H. Sheperd.

14. Chatham, Virginia - J. H. Lillard, J. B. Burford, D. W. Cardwell, W. E. Dickerson, Jr., T. W. Edminster, E. F. Hart, W. M. Holcomb, H. N. Holtan, Louise Howard, Mrs. J. N. Jones, Jr., S. D. Owen.

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2/ Mr. Burford is stationed at Blacksburg, Virginia.

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16. Alhambra, Illinois - Neal E. Minshall<sup>1/</sup>, R. C. Hay, Wm. F. Lytle, E. J. Monke.

17. Edwardsville, Illinois - Neal E. Minshall, L. J. Bartelli, H. N. Holtan, R. R. Irwin, J. Love, E. N. Steely, R. P. Weeber.

18. Elmwood, Illinois - George A. Crabb, Jr., H. N. Holtan.

19. Lafayette, Indiana - George A. Crabb, Jr., Glen D. Bedell, Wm. O. Brumfield, Harold P. Davidson, Carl A. Dyer, Ivan P. Edwards, Frank E. Fleming, Robert B. Hickok, Mrs. Margaret Julian, Helmut Kohnke, Ivan D. Mayer, Chase O. Reed, Norval L. Stoltenberg, W. H. Wischmeier.

20. Clarinda, Iowa - Neal E. Minshall, Frances Berns, Anna Cramer, L. S. Cutter, J. Downing, K. Driftmier, G. R. Free, J. R. Johnston, G. W. Musgrave, O. R. Neal, R. A. Norton, L. H. Schoenleber, Leo Wheeler, Dale Winger.

21. Iowa City, Iowa - Neal E. Minshall, V. R. Bennion, M. R. Carstens, L. C. Crawford, J. R. Flemming, J. W. Howe, H. Johnson, R. Kasel, E. W. Lane, F. T. Mavis, F. A. Nagler, R. L. Smith, Edward Soucek, D. L. Yarnell.

22. Shenandoah, Iowa - Neal E. Minshall, H. C. Beckman, W. J. Boatman, W. J. B. Boatman, G. W. Holmes, S. K. Love, W. D. Potter, P. C. Weichman.

23. East Lansing, Michigan\* - George A. Crabb, Jr., W. U. Garstka, Lewis H. Stölzy, R. G. White.

24. Bethany, Missouri - J. A. Allis, A. T. Holman, D. D. Smith, A. W. Zingg.

25. McCredie, Missouri - J. A. Allis, Neal E. Minshall, D. D. Smith.

26. Coshocton, Ohio\* - Lloyd L. Harrold, F. R. Dreibelbis, W. D. Ellison, Dan E. Hall, J. L. McGuinness, W. H. Pomerene, H. S. Riesbol, Mary K. Royer, Leonard Schiff, Leonard Westby, Mary A. Williams.

27. Hamilton, Ohio - Lloyd L. Harrold, Robert B. Hickok, Neal E. Minshall.

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28. Zanesville, Ohio - Lloyd L. Harrold, H. L. Borst.
29. Colby, Wisconsin - Neal E. Minshall, E. Berkman, M. W. Kyler, L. L. Sheerar.
30. Coon Valley, Wisconsin - Neal E. Minshall, Wm. DeYoung, F. C. Christopherson, G. W. Holmes, Don Hurtgen, S. K. Love, W. D. Potter, S. B. Soule, C. C. Yonker.
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32. LaCrosse, Wisconsin - Neal E. Minshall, H. B. Atkinson, R. H. Davis, F. E. Hardisty, O. E. Hays, R. V. Keppel, L. L. Lemke, S. J. Mech, R. G. Neu, V. J. Palmer, G. E. Ryerson, J. C. Trieloff.
33. Bentonville, Arkansas - Ralph W. Baird, Howard Matson, Wm. H. Strong, Vilas D. Young.
34. Cherokee, Oklahoma - Ralph W. Baird, Maurice B. Cox, Harley A. Daniel, Harry M. Elwell.
35. Guthrie, Oklahoma - Ralph W. Baird, H. E. Bergschneider, Maurice B. Cox, Harley A. Daniel, Harry M. Elwell, H. G. Lewis, S. W. Phillips, C. E. Ramser, H. S. Riesbol, J. W. Slosser.
36. Muskogee, Oklahoma - Ralph W. Baird, Wm. H. Strong, Vilas D. Young.
37. Stillwater, Oklahoma\* - Wm. O. Ree, F. R. Crow, G. W. Kidston, W. W. Voss, T. L. Willrich.
38. Garland, Texas - Ralph W. Baird, Roy C. Garrett, Howard Matson, P. M. Price, Wm. H. Strong, Vilas D. Young.
39. Spur, Texas - Ralph W. Baird, Earl Burnett, A. B. Conner, R. E. Dickson, C. E. Fisher, B. C. Langley, W. F. Turner.
40. Tyler, Texas - Ralph W. Baird, Carl Archer, B. H. Hendrickson, P. R. Johnson, S. J. Mech, J. B. Pope, O. C. Word.
41. Vega, Texas - Robert B. Hickok, Harry Leonhardt, Hayden K. Rouse, Billy J. Wolfenbarger.
42. Riesel (Waco), Texas\* - Ralph W. Baird, George E. Byars, Monroe A. Hartman, D. S. Jenkins, J. T. O'Brien, J. B. Pope, Edna T. Thompson, L. A. Westby.
43. Hays, Kansas - John A. Allis, F. G. Ackermann, P. L. Brown, R. O. Baum, R. R. Drake, S. A. Michael, C. E. Van Doren.
44. Hastings, Nebraska\* - John A. Allis, Ivan Bauer, R. R. Drake, F. L. Duley, F. D. Keim, Ludwig L. Kelly, Victor Mockus.

45. Safford, Arizona - Robert B. Hickok, John H. Dorroh, Jr., Wm. Gililland, Thomas Maddock, Jr., Hayden K. Rouse, Clay H. West, Billy J. Wolfenbarger.

46. Colorado Springs, Colorado - Robert B. Hickok, Harry Leonhardt, Hayden K. Rouse, Billy J. Wolfenbarger.

47. Albuquerque, New Mexico\* - Robert B. Hickok, Mrs. Blanche Allen, John H. Dorroh, Jr., Thomas Maddock, Jr., Billy J. Wolfenbarger.

48. Mexican Springs, New Mexico - Robert B. Hickok, Albert J. Dickson, James L. Gardner, Donald S. Hubbell, Lowell R. Rich, George L. Sherman, Thomas Utterback, Charles J. Whitfield, Billy J. Wolfenbarger.

49. Santa Fe, New Mexico - Robert B. Hickok, John H. Dorroh, Jr., Thomas Maddock, Jr., Hayden K. Rouse, Billy J. Wolfenbarger.

50. Placerville, California - E. L. Neff<sup>1/</sup>, J. G. Bamesberger, P. C. Boelzer, C. W. Cleary, Jr., M. E. Ewing, H. A. Hagestad, H. M. Lumsden, G. E. Paxton, J. Polifka, H. S. Riesbol, Walter Russ, Leonard Schiff, W. B. Watson, O. F. Weymouth.

51. Santa Paula, California - E. L. Neff, J. G. Bamesberger, W. C. Barrett, H. R. McConnell, Leonard Schiff.

52. Sebastopol, California - E. L. Neff, J. G. Bamesberger, C. W. Cleary, Jr., E. M. Getzman, E. C. Hansen, H. S. Riesbol, Walter Russ, Leonard Schiff, H. W. Sheldon, W. B. Watson, O. F. Weymouth.

53. Vacaville, California - E. L. Neff, J. G. Bamesberger, L. S. Carter, C. W. Cleary, Jr., H. C. Enderlin, E. F. Nourse, H. S. Riesbol, Walter Russ, Leonard Schiff, Paul Tilker, W. B. Watson, O. F. Weymouth.

54. Watsonville, California - E. L. Neff, S. J. Anderson, H. O. Banks, J. G. Bamesberger, W. E. Christie, C. M. Forsberg, G. W. Gosline, Allan Hunter, F. B. Lewis, J. M. Reynolds, Leonard Schiff, W. P. Watson, O. F. Weymouth.

55. Emmett, Idaho - E. L. Neff, J. P. Bonner, H. C. Clemmer, C. S. Johnson, J. C. Pitkin, H. S. Riesbol, H. W. Scott, Wm. Talley, Charles Vahlberg, W. B. Watson.

56. Moscow, Idaho - E. L. Neff, G. O. Baker, J. P. Bonner, M. R. Kulp, H. S. Riesbol, W. B. Watson.

57. Newberg, Oregon - E. L. Neff, J. P. Bonner, Tom Davis, Howard Gibson, Howard Magness, H. S. Riesbol, J. N. Shellabarger, R. E. Stephenson, W. B. Watson.

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<sup>1/</sup> Mr. Neff is stationed at Berkeley, California.

58. Dayton, Washington - E. L. Neff, J. P. Bonner, J. B. Johnson, A. Kellingsworth, George Leonard, H. W. Ostheller, H. S. Riesbol, W. B. Watson, C. T. Webb, Jr., D. A. Williams.

59. Pullman, Washington (SCS Demonstration Project) - E. L. Neff, J. P. Bonner, G. W. Caughran, S. K. Love, W. D. Potter.

60. Pullman, Washington (Soil and Water Conservation Experiment Station) - E. L. Neff, G. M. Horner, Stephen Mech, P. C. McGrew, L. M. Naffziger.

61. Monticello, Illinois - Neal E. Minshall, Wm. F. Lytle, Ralph C. Hay, R. D. Black, B. A. Jones, E. J. Monke.

Over-all supervision and administration of the projects has been the responsibility of the personnel of the Washington offices of the several Department of Agriculture agencies; many individuals have shared in this responsibility. The following is a partial list: H. L. Cook, Lloyd L. Harrold, Lewis A. Jones, D. B. Krimgold, H. R. Leach, H. E. Middleton, M. L. Nichols, W. D. Potter, C. E. Ramser, and Waldo E. Smith. Special credit is due to Mr. Ramser, who pioneered in this type of work.

The responsibility for research in the hydrology of agricultural watersheds now rests with the Watershed Hydrology Section of the Soil and Water Conservation Research Branch, Agricultural Research Service. William C. Ackermann initiated and gave general supervision in the compilation of these volumes during his service as Head of the Watershed Hydrology Section, from May 1954 to May 1956. Ludwig L. Kelly, Hydraulic Engineer, Watershed Hydrology Section, coordinated the work of the Project Supervisors in the compilation and assembly of the material.

#### Explanation and Definitions

Data for each watershed has been compiled on two pages. The first page presents the physical features of the watershed and mass curves of precipitation and runoff; the second page gives values of the monthly amounts of precipitation and runoff together with yearly totals and monthly averages. The following paragraphs give general explanations of the material on each page with appropriate definitions of terms.

First page (watershed description and graph).

The numbers in the upper left hand corner are the month and year of preparation. The top line gives the project location, which is usually the nearest town, and the number or name of the watershed as used on the project.

LOCATION, in some cases, lists two or more river basins; the sub-basin



is given first, followed by the major basins. The distance and direction given refers to the location of the gaging station.

AREA and SHAPE are self-explanatory.

SLOPES are given in percentage of the watershed area lying in each slope class. For example, "8% is in 0-2% class" means that 8 percent of the watershed area has slopes ranging from 0 to 2 percent. The "Aspect" refers to the general direction of the slope; a watershed having a north aspect would slope downstream from south to north.

SOILS are described according to definitions briefed from the U. S. Department of Agriculture "Soil Survey Manual, Agriculture Handbook No. 18." Soil texture refers to the relative proportions of the various size groups (or separates) of individual soil grains in a mass of soil. Specifically it refers to the proportions of clay, silt, and sand below two millimeters in diameter. The various classes of texture in order of increasing percentages of the smaller size groups and decreasing percentages of the larger size groups are (1) sands, (2) loamy sands, (3) sandy loams, (4) loam, (5) silt loam, (6) silt, (7) sandy clay loam, (8) clay loam, (9) silty clay loam, (10) sandy clay, (11) silty clay, and (12) clay. In some of the descriptions the broader classification of coarse, moderately coarse, medium, moderately fine, and fine has been used - the coarse soils being the sands and the fine soils, the clays. Soil structure refers to the aggregation of primary soil particles into compound particles, or clusters of primary particles, which are separated from adjoining aggregates by surfaces of weakness. Structure grade, or the durability of the aggregates when subjected to disturbance, is described as structureless, weak, moderate, or strong. The size of the aggregates is described as very fine, fine, medium, coarse, and very coarse. Structure shape is described as being platy, prismatic, columnar, angular blocky, sub-angular blocky, granular, or crumb. Permeability is the quality of a soil that enables it to transmit water or air. This quality is described by the terms very slow, slow, moderately slow, moderate, moderately rapid, rapid, and very rapid. Internal soil drainage is the quality of a soil that permits the downward flow of excess water thru it. Internal drainage is reflected in the frequency and duration of periods of saturation with water. It is determined by the texture, structure, and other characteristics of the soil profile and of underlying layers and by the height of the water table, either permanent or perched, in relation to the water added to the soil. Internal soil drainage is described as none, very slow, slow, medium, rapid, and very rapid.

EROSION conditions of the watershed are described in accordance with the following classification, briefed from the "Soil Survey Manual, Agriculture Handbook No. 18." The classification is for water erosion.

**Class 1** - The soil has a few rills or places with thin A horizons that give evidence of accelerated erosion, but not to an extent to

alter greatly the thickness and character of the A horizon. Except for soils having very thin A horizons (less than 8 inches), the surface soil consists entirely of A horizon throughout nearly all of the delineated area. Up to about 25 percent of the original A horizon, or original plowed layer in soils with thin A horizons, have been removed from most of the area. This class also includes the areas of no erosion.

Class 2 - The soil has been eroded to the extent that ordinary tillage implements reach through the remaining A horizon, or well below the depth of the original plowed layer in soils with thin A horizons. Generally, the plow layer consists of a mixture of the original A horizon and the underlying horizons. Mapped areas of eroded soil usually have patches in which the plow layer consists wholly of the original A horizon and others in which it consists wholly of underlying horizons. Shallow gullies may be present. Approximately 25 to 75 percent of the original A horizon or surface soil may have been lost from most of the area.

Class 3 - The soil has been eroded to the extent that all or practically all of the original surface soil, or A horizon, has been removed. The plow layer consists essentially of materials from the B or other underlying horizons. Patches in which the plow layer is a mixture of the original A horizon and the B horizon or other underlying horizons may be included within mapped areas. Shallow gullies, or a few deep ones, are common in some soil types. More than about 75% of the original surface soil, or A horizon, and commonly part or all of the B horizon, or other underlying horizons, have been lost from most of the area.

Class 4 - The land has been eroded until it has an intricate pattern of moderately deep or deep gullies. Soil profiles have been destroyed except in small areas between the gullies. Such land is not useful for crops in its present condition. Reclamation for crop production or for improved pasture is difficult but may be practical if other characteristics of the soil are favorable and erosion can be controlled.

Class + - Recent alluvial and colluvial deposition.

LAND CAPABILITY expresses the suitability of land for use without damage. The classification used is that given in the Soil and Water Conservation Glossary prepared by the Soil Conservation Society of America. The eight land-capability classes, distinguished according to the risk of land damage or difficulty of land use are:

Land suitable for cultivation and other uses.

Class I - Very good land for cultivation. Nearly level and productive; not subject to erosion. Needs only ordinary good farming methods.



Class II - Good land for cultivation. Mostly gently sloping, not more than moderately subject to erosion. Some rather wet. Can be farmed safely with easily applied practices.

Class III - Moderately good land for cultivation. Mostly moderately sloping. Some too wet or too dry. Can be farmed safely with practical conservation measures, carefully applied. Usually a combination of two or more measures is needed.

Class IV - Fairly good land, suitable for occasional cultivation. Generally strongly sloping; often shallow or very sandy. Often dry climate.

Land not suitable for cultivation.

Class V - Land very well suited for grazing or forestry. Requires good range or woodland management.

Class VI - Land well suited for grazing or forestry. Steeply sloping land, stony or shallow soil, eroded land, droughty land, or wet land. Requires careful management.

Class VII - Land fairly well suited for grazing or forestry. Severely limited in use by such factors as very steep slope, shallow or droughty soil, wetness, severe erosion, or excessive salinity. Requires very careful management.

Class VIII - Land not suitable for cultivation, grazing, or forestry. May be useful for wildlife, recreation, or protection of water supplies.

SURFACE DRAINAGE refers to the ease with which excess water flows from the watershed area. The length of principal waterway is the distance from the gaging station to the most remote point on the watershed boundary, measured along the flood plain of the watercourse.

CHARACTER OF FLOW describes the flow of the principal watercourse with respect to permanence and space. The following definitions are from U. S. Geological Survey Water Supply Paper No. 494, "Outline of Ground Water Hydrology":

With respect to permanence, streams may be divided into perennial streams, intermittent streams, and ephemeral streams.

A perennial stream, or stretch of a stream, is one which flows continuously. Perennial streams are generally fed in part by springs, and their upper surfaces generally stand lower than the water table in the localities through which they flow.

Intermittent streams may be divided, with respect to the source

of their water, into spring-fed intermittent streams and surface-fed intermittent streams. They also flow, of course, in direct response to precipitation.

A spring-fed intermittent stream, or stretch of a stream, is one that flows only at certain times when it receives water from springs. The intermittent character of streams of this type is generally due to fluctuation of the water table whereby the stream channels stand a part of the time below and a part of the time above the water table. This is the ordinary type of intermittent stream.

A surface-fed intermittent stream, or stretch of a stream, is one that flows during protracted periods when it receives water from some surface source, generally the gradual and long-continued melting of snow in a mountainous or other cold tributary area. The term may be arbitrarily restricted to streams or stretches of streams that flow continuously during periods of at least one month.

An ephemeral stream, or stretch of a stream, is one that flows only in direct response to precipitation. It receives no water from springs and no long-continued supply from melting snow or other surface source. Its stream channel is at all times above the water table. The term may be arbitrarily restricted to streams or stretches of streams that do not flow continuously during periods of as much as one month.

With respect to continuity in space, streams may be divided into continuous streams and interrupted streams. An interrupted stream is one which contains (a) perennial stretches with intervening intermittent or ephemeral stretches or (b) intermittent stretches with intervening ephemeral stretches. These two classes of interrupted streams are designated, respectively, perennial interrupted streams and intermittent interrupted streams. A continuous stream is one that does not have interruptions in space. It may be perennial, intermittent, or ephemeral, but it does not normally have wet and dry stretches.

INSTRUMENTATION is self-explanatory.

WATERSHED CONDITIONS are described with the commonly used agricultural terms. Only the factors that appear to have a significant relationship to the hydrology of the watershed are described.

The areas named under the topic GENERALLY REPRESENTS are those of the enclosed map and classification "Problem Areas in Soil Conservation." This map also shows the location of the experimental watersheds. It will be noted that in some cases there is an apparent contradiction between the watershed location on the map and the information given under

the item "Generally represents." The information given under "Generally represents," rather than the map location, should be the guide to the application of the data, as on a map of this scale minor local variations cannot be shown.

The graph of ACCUMULATED PRECIPITATION AND RUNOFF shows a condensed picture of the measured rainfall and runoff for the period of observation and provides a quick means of making comparison with other areas.

Second page (Precipitation and runoff data).

These sheets show for each watershed the monthly and annual amounts of precipitation and runoff for the period of record. The monthly and yearly averages, computed on the basis of the full years in the period of record, are given at the bottom of the sheet. The normal monthly precipitation, based usually on the nearest Weather Bureau gage of long record, is given in the last line of the table. Because of failure of the recording instruments, it is occasionally necessary to estimate portions of the record; where these estimates were of a significant amount, the value is so noted. The footnotes also include a statement on the accuracy of the data presented; the terms are those used by the United States Geological Survey. "Excellent" indicates in general that the records are probably accurate within 5 percent; "good," within 10 percent; "fair," within 15 percent; and "poor," that the records may be in error by over 15 percent.

#### ADDITIONAL DATA AND REFERENCES

The data presented here have been summarized from detailed compilations. These compilations, giving the data in sufficient detail to construct hydrographs for all periods of runoff and to adequately represent the rainfall intensities producing the runoff, are available at the offices of the Project Supervisors as listed under "Cooperation and Acknowledgments."

The following publications, many of them now out of print but available at the offices of the Project Supervisors, also give additional information on amounts of precipitation and runoff, description of the experimental watersheds, and analysis of the data. The publications pertinent to each location are listed.

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LOCATION: Tompkins Co., N.Y.; 13 mi. SW Ithaca; Cayuta Creek, Susquehanna River Basin.

AREA: 17.9 ac.

SHAPE: Pear with outlet at stem, 1300 ft. long, 300 to 980 ft. wide

SLOPES: 17% is in 0-3% class; 17% in 3-8%; 66% in 8-15%. Aspect W-NW.

SOILS: Acid glacial till derived from siltstone, sandstone and shale. 1 Volusia silt loam 67%; 2 Fremont silt loam 17%; 3 Lordstown and Bath flaggy silt loam 16%. Topsoil - all moderate structure; 6 in. av.; all rapid permeability. Subsoil - 1 weak medium platy to massive structure; 2 weak medium granular to massive structure; 3 weak fine crumb structure; permeability 1 & 2 moderately slow; 3 moderate. Permeability and av. depth to impeding substratum - 1, slow to very slow at 17 in.; 2, slow at 18 in.; 3, moderate to moderately slow at 25 in. Internal drainage - 1 very slow; 2 slow; 3 medium.

EROSION: 1 - 28%; 3 - 72%

NOTE: The percentages of areas of various slopes, soils, erosion and land capabilities are approximate only and subject to revision.

LAND CAPABILITY: II - 16%; III - 84%

SURFACE DRAINAGE: Good - defined waterway for 260 ft. Entire drainage area defined by earth dike 9 to 12 in. high which directs surface flow to gaging station.

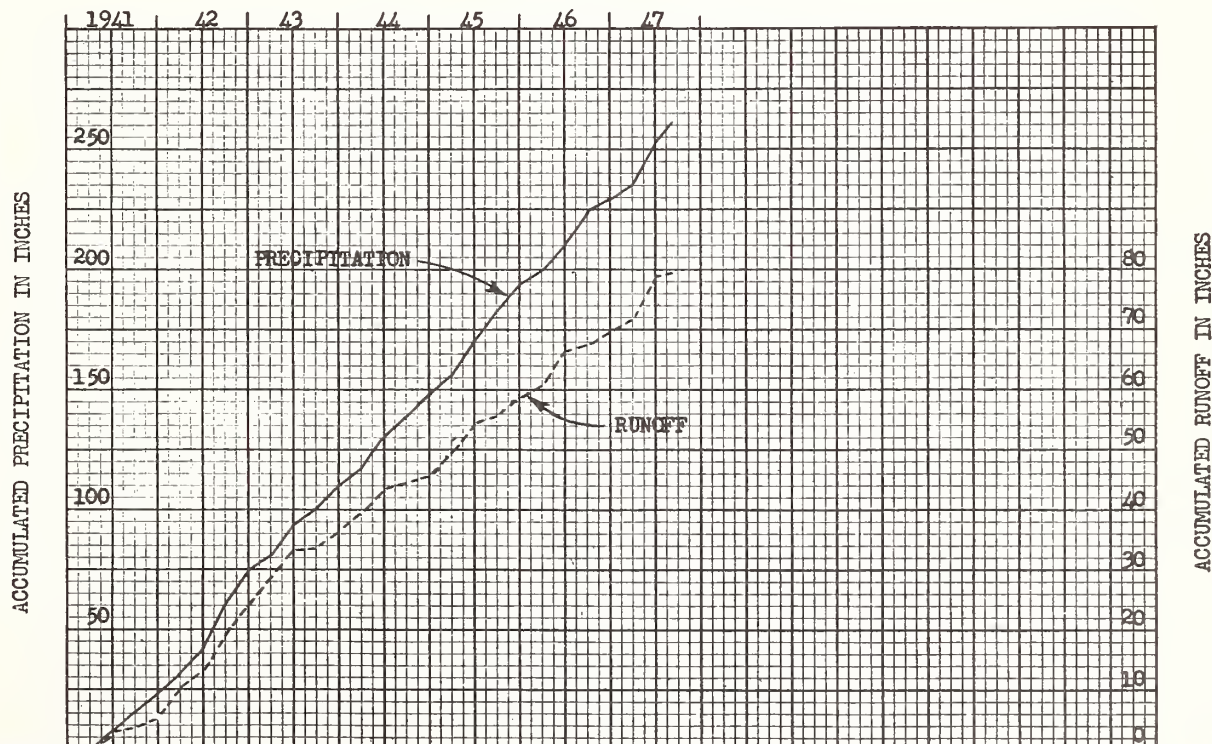
CHARACTER OF FLOW: Perennial, continuous.

INSTRUMENTATION: Runoff - H-4 ft. flume with 12 hr. chart; low base flows, H-0.5 ft. flume with weekly chart; precipitation - recording gage with 12 hr. chart near runoff station, summer months only.

WATERSHED CONDITIONS: The land on which this watershed lies was cleared about 1870 and probably produced corn, oats, wheat and hay crops. It is possible that moderate amounts of limestone, superphosphate, mixed fertilizers and manure were used in the 1920's to produce these crops. Moderate to severe erosion occurred on the large rectangular fields, planted off contour. Some years prior to 1941, the land was abandoned for cultivation. In that year, the area had a fair to good cover of grass and weeds. This cover continued through the years of record, with some encroachment of woody plants and small trees in the lower third of the area. There was no cultivation or grazing on the area and an organic layer of 1/10 to 1/4 in. has accumulated on the surface of the soil. From 1 to 3 snow surveys have been made from Jan. to April each year by weighing snow cores at from 10 to 13 locations.

GENERALLY REPRESENTS: Sloping abandoned lands at higher elevations in the Glaciated Shale and Sandstone Areas of New York and Pennsylvania on rapid to very slowly permeable soils, with medium to very slow internal drainage, good surface drainage and moderate to severe erosion in the southern tier of New York and northern Pennsylvania.

ACCUMULATED PRECIPITATION AND RUNOFF



## MONTHLY PRECIPITATION AND RUNOFF (Inches) Arnot Forest, Ithaca, N.Y. Watershed 1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941	P			2.33	2.39	3.18	4.44	1.75	1.32	2.14	2.36	2.77A	22.68
	Q			2.67	.22	.30	.37	.12	.20	.14	.82 <sup>e</sup>	.69 <sup>e</sup>	5.53
1942	P	1.59E	2.70E	4.47E	2.13	5.24	3.18	5.67	8.97	4.88	4.05	3.68	51.89
	Q	.32	.29	3.98	1.43	1.23	.53	.46	4.45	1.17	1.40	1.37	18.74
1943	P	1.57A	1.39A	2.98A	4.19	6.06	3.29	2.74	2.50	.83	6.75	3.21A	36.16
	Q	.80	1.40	2.01	2.13	2.55	.49	.12	.08	.07	.67	1.30	11.90
1944	P	.80A	1.82A	2.97A	2.82A	5.10	6.21	2.94	2.05	3.33	2.69	3.25A	37.03
	Q	.10	.09	2.74	1.53	1.81	1.50	.23	.10	.08	.18	.57	9.67
1945	P	2.91A	2.64A	2.49A	2.52A	6.08	5.76	3.51	2.64	5.95	4.67	5.54	46.20
	Q	.44	.39	2.97	.86	2.69	1.15	.13	.07	.76	1.49	1.12	12.61
1946	P	1.00A	1.86A	2.29A	1.19A	7.82	3.07	4.84	3.70	4.41	3.54	.91A	35.98
	Q	.69	.10	1.54	.43	3.64	1.40	.22	.61	.24	1.23	.47	10.96
1947	P	2.32A	1.04A	1.95A	4.34A	7.13	5.51	4.90	4.62				31.81
	Q	1.39	.37	.52	1.94	2.86	2.43	.17	.03				9.71
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**LOCATION:** Tompkins Co., N.Y.; 13 mi. SW Ithaca, N.Y.; Cayuta Creek, Susquehanna River Basin.

**AREA:** 17.9 ac.

**SHAPE:** Roughly triangular, sides 1040, 1180 and 1440 ft.

**SLOPES:** 86% is in 8-15% class; 14% in 15-25%. Aspect W.

**SOILS:** Acid glacial till derived from siltstone, sandstone and shale. 1 Volusia silt loam 49%; 2 Mardin silt loam 37%; 3 Lordstown flaggy silt loam 14%. Topsoil - all moderate structure; 3 in. av.; all rapid permeability. Subsoil - 1 weak medium platy to massive structure; 2 weak medium crumb to platy structure; 3 weak fine crumb structure; permeability - 1 & 2 moderately slow; 3 moderate. Permeability and average depth to impeding substratum - 1, slow to very slow at 17 in.; 2, very slow at 22 in.; 3 moderately slow at 25 in. Internal drainage - 1 very slow; 2 slow; 3 medium.

**EROSION:** 1 - 87%; 2 - 13%.

**NOTE:** The percentages of areas of various slopes, soils, erosion and land capabilities are approximate only and subject to revision.

**LAND CAPABILITY:** III - 100%

**SURFACE DRAINAGE:** Good - defined waterway for 300 ft. with scattered rocks in bottom and sides. Entire drainage area defined by earth dike 6 to 9 in. high which directs surface flow to gaging station. Depressions formed by trees toppled by wind and ice load are numerous on 60% of area.

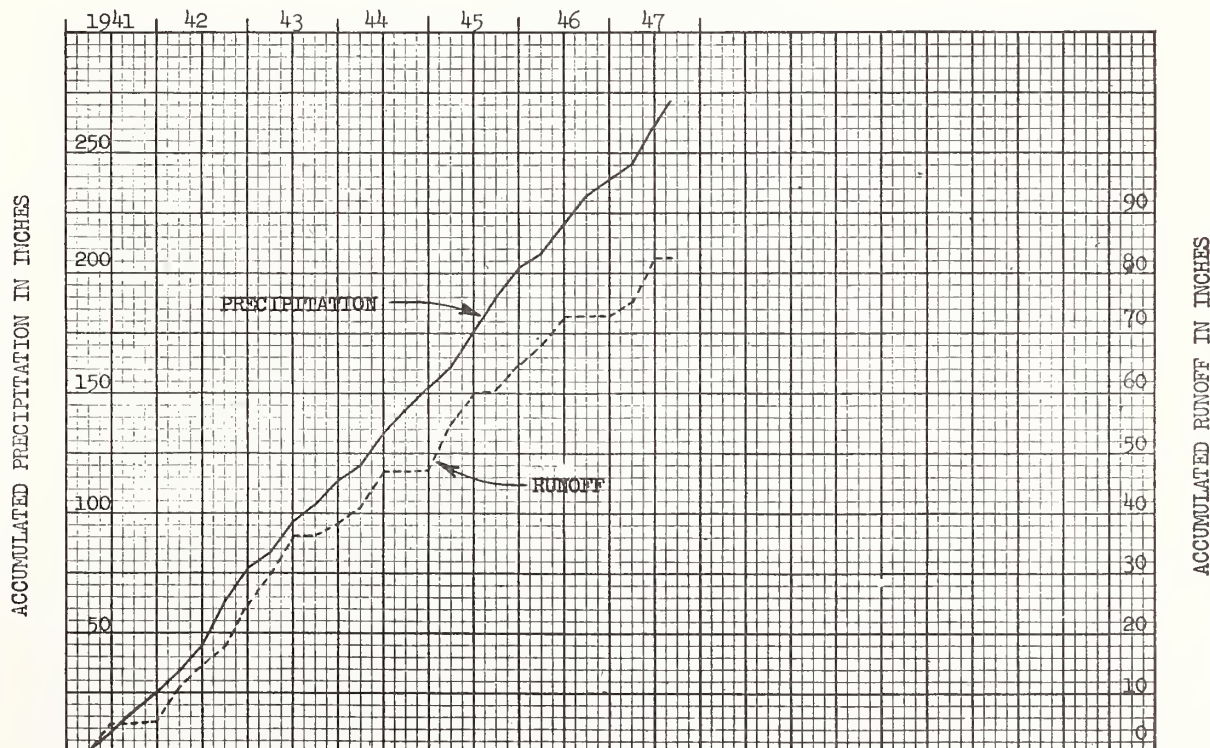
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - HL-4 ft. flume with 12 hr. chart; low base flows, H-0.5 ft. flume with weekly chart; precipitation - 2 standard gages at top and bottom of watershed, summer of 1941; 1 recording gage at runoff station, summer months only, 1942-47, 12 hr. chart.

**WATERSHED CONDITIONS:** The original woodland was heavily logged between 1873 and 1900. It has been burned over several times, notably in 1900 and 1911. There have been no fires of consequence since the acquisition of the adjacent areas by Cornell University in 1927. The present second growth woodland has never been plowed and is composed chiefly of beech, maple, ash and black cherry with some hemlock and basswood except on areas that were severely burned where aspen (popple) predominate. Due to the tight, shallow soil, the area is pitted by treefalls, from winds and ice storms toppling the shallow-rooted trees whose roots would elevate a disk of soil a foot or more thick, leaving a shallow pocket. The litter on the woodland floor is very thin due to the old burnings and biological activity. The surface inch of the topsoil generally has a granular structure. There has been no cutting in the area since 1941. From 1 to 4 snow surveys were made from Jan. to April each year at 10 to 14 locations, by weighing snow cores for water equivalent.

**GENERALLY REPRESENTS:** Sloping second growth woodlands at higher elevations in the Glaciated Shale and Sandstone Areas of New York and Pennsylvania on rapid to very slowly permeable soils, with medium to very slow internal drainage, with good surface drainage and none to slight erosion in the southern tier of New York and northern Pennsylvania.

ACCUMULATED PRECIPITATION AND RUNOFF



Notes: \*Averages of all months of record. #Sum of monthly averages. Normal P based on 75 yr. record. (1875-1949) at Ithaca, N.Y. A & E, winter records from plot gage A or E, 1.5 miles SW of watershed. <sup>a</sup>Averages of 2 standard gages. Months of Oct. to May may include snow & snow melt. <sup>e</sup>Estimated runoff. Quality of records; P, excellent, except winter months, which are good; Q, excellent, except those estimated, which are good to fair.



**LOCATION:** Steuben Co., N.Y.;  $\frac{1}{2}$  mi. SE of Cohocton; Switzer Creek, Cohocton River, Chemung River, Susquehanna River Basin.

**AREA:** 13.8 ac.

**SHAPE:** Roughly rectangular, 620 ft. wide by 970 ft. long.

**SLOPES:** 9% is in 0-3% class; 19% in 3-12%; 39% in 12-20%; 33% in 20-30%. Aspect E-SE.

**SOILS:** Acid glacial till derived from siltstone, sandstone and shale. 1 Lordstown channery silt loam 67%; 2 Fremont channery silt loam 18%; 3 Mardin channery silt loam 15%. Topsoil - all weak structure; 1, 9 in. av.; 2, 7 in. av.; 3, 9 in. av.; all moderately rapid permeability. Subsoil - 1 weak fine crumb structure; 2 & 3 weak fine crumb to platy structure; permeability, 1 moderate, 2 & 3 moderately slow. Permeability and av. depth to impeding substratum - 1, moderately slow at 24 in.; 2, very slow at 16 in.; 3, very slow at 26 in. Internal drainage - 1 medium, 2 & 3 slow. (Bedrock varies from

**EROSION:** 1 - 18%; 3 - 82%.

[20 to 48+ in., av. 36.)

**LAND CAPABILITY:** III - 28%; IV - 39%; VI - 33%.

**SURFACE DRAINAGE:** Excellent - principal waterway vegetated diversion terrace 900 ft. long on 0.9% channel slope, plus 590 ft. overland on 15% av. slope to remote point. Parabolic channel 16 to 21 ft. wide, 1.0 to 1.6 ft. deep, with 20 ft. grass filter strip above. Flow modified by channel storage and

**CHARACTER OF FLOW:** Ephemeral, continuous.

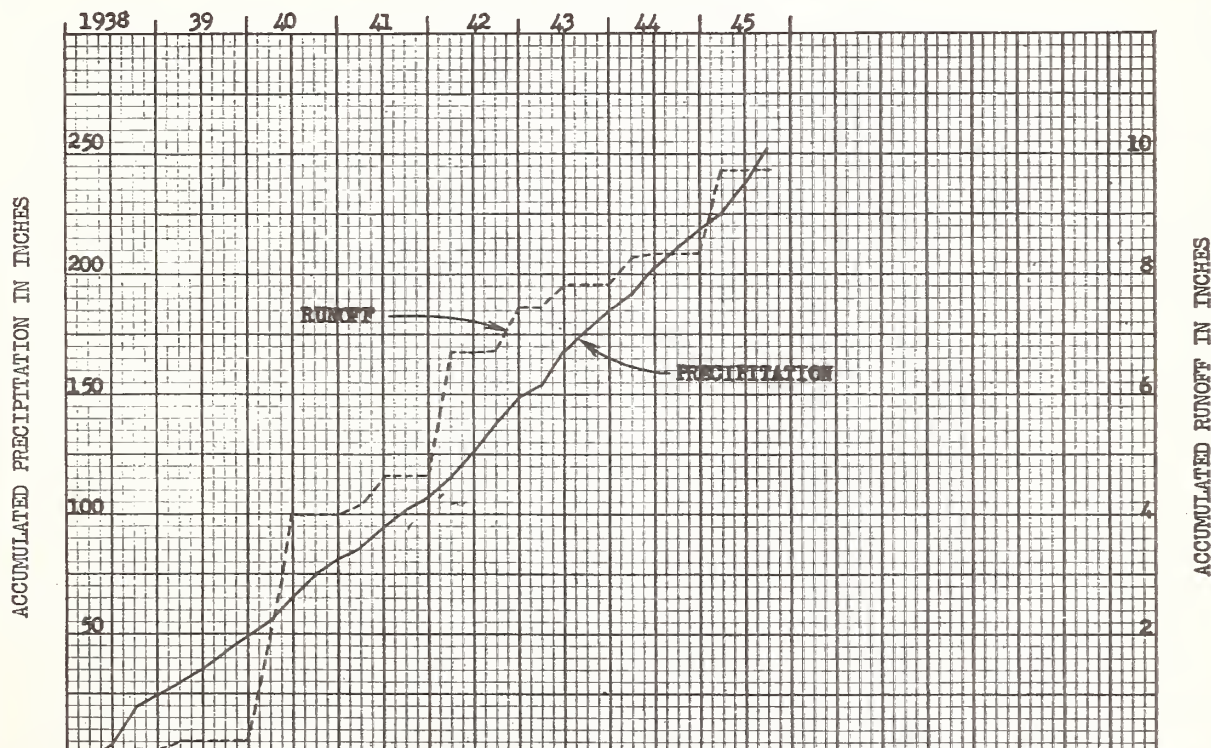
[pondage back of weir.

**INSTRUMENTATION:** Runoff - 30" broad-crested concrete V-notch weir with 2:1 crest slope; 6 hr. chart; precipitation - recording gage 60 ft. N. of weir, 12 hr. chart. Snow surveys made in 1940, '41, and '45.

**WATERSHED CONDITIONS:** This watershed is a sub-drainage lying at the top of the west slope of the Switzer Creek drainage area, about 1500 ft. upstream from the W-I runoff gaging station. Prior to 1938 it had been cultivated somewhat off contour in 4 large fields. In 1938, the boundaries of 6 contour strips, varying from 60 to 150 ft. in width, were plowed out and a start made in 1939 to place a 4-yr. rotation of potatoes, oats, clover and timothy on the strips. Due to economic conditions and World War II, this was never fully carried out. Cultivation was on the contour, but in some years 2 strips were thrown together. Potatoes were not grown in '39, '40, or '42 and varied from 3% to 52% of the area in the 5 other years. Percentage in hay varies from 100% in 1942 to 29% in 1945. 30% was in wheat in 1940, 15% in 1941. Crop yields were generally good to excellent.

**GENERALLY REPRESENTS:** Sloping to steep cultivated lands at higher elevations in the Glaciated Shale- and Sandstone Area of New York and Pennsylvania on moderately rapid to very slowly permeable soils, with medium to slow internal drainage, excellent surface drainage and slight to severe erosion in the southern tier of New York and northern Pennsylvania.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Cornell University Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Cohocton, New York Watershed W-II

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q					2.84 T	3.15 .01	4.07 .01	2.25 T	8.51 .08	0.44 0	2.10 0	1.29 0	24.65 .10
1939 P Q	1.50 0	2.10 .10 <sup>e</sup>	2.15 .03	1.91 0	1.69 0	1.70 0	3.49 T	.78 0	2.97 0	3.19 0	.86 0	2.74 0	25.08 .13 <sup>e</sup>
1940 P Q	.75 0	2.11 0	2.78 1.58	3.07 2.23	3.20 0	4.73 0	3.89 T	2.07 0	3.74 0	1.90 0	2.02 0	2.76 T	33.02 3.81
1941 P Q	1.56 0	.71 0	1.88 .15	2.88 .45	2.09 0	4.12 T	3.82 0	1.20 0	1.47 0	2.30 0	1.27 0	2.40 0	25.70 .60
1942 P Q	1.16 0	2.49 0	4.96 2.10	2.01 0	3.75 0	3.80 0	8.79 .05	1.87 0	3.72 0	2.82 0	3.09 0	3.87 .70	42.33 2.85
1943 P Q	1.58 0	.91 T	2.14 0	4.56 .06	5.86 .29	3.59 T	5.67 T	3.23 0	.87 0	4.96 0	2.09 0	.82 0	36.28 .35
1944 P Q	1.00 0	2.25 .43 <sup>e</sup>	2.48 .03 <sup>e</sup>	3.41 .08 <sup>e</sup>	4.05 0	4.66 0	3.74 0	1.77 0	2.86 0	1.85 0	2.15 0	3.07 0	33.29 .54 <sup>e</sup>
1945 P Q	1.56 0	2.72 T	2.67 1.36	2.80 0	4.87 .03	4.67 0	4.83 0	3.12 0	6.36 0				33.60 1.39
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* Av. P * Av. Q	1.30 0	1.90 .08	2.72 .75	2.95 .40	3.54 .04	3.80 T	4.79 .01	2.04 0	3.81 .01	2.49 0	1.94 0	2.42 .10	33.70 <sup>#</sup> 1.39 <sup>#</sup>
Normal P	1.88	1.72	2.55	2.75	3.42	3.61	3.86	3.34	2.99	2.76	2.42	1.97	33.27

Notes: \*Averages of all months of record. #Sum of monthly averages. Normal P based on monthly records at Haskinsville, N.Y. (1895-1955), including 54 complete years and 7 partial years. Months of Jan. to May and Oct. to Dec. may include snow and snow melt. <sup>e</sup>Partially estimated. Quality of records: P, excellent; Q, excellent, except for those estimated, which are fair.



## COHOCTON, NEW YORK Watershed W-III

LOCATION: Steuben Co., N.Y.,  $2\frac{1}{2}$  mi. ENE of Cohocton; Switzer Creek, Cohocton River, Chemung River, Susquehanna River Basin.

AREA: 24.2 ac.

SHAPE: Fan, radius of 930 to 1230 ft. on  $125^\circ$  of arc.

SLOPES: 10% is in 0-3% class; 41% in 3-12%; 36% in 12-20%; 13% in 20-30%. Aspect N-NW.

SOILS: Acid glacial till derived from siltstone, sandstone and shale. 1 Lordstown channery silt loam 86%; 2 Mardin channery silt loam 14%. Topsoil - both weak structure; 1, 9 in. av.; 2, 7 in. av.; both moderately rapid permeability. Subsoil - 1, weak fine crumb structure; 2, weak fine crumb to platy structure; permeability, 1 moderate, 2 moderately slow. Permeability and av. depth to impeding substratum - 1, moderately slow at 30 in.; 2, very slow at 14 in. Internal drainage - 1 medium; 2, slow. (Bed rock varies from 11 to 50+ in.; av. 28 in.)

EROSION: 2 - 14%; 3 - 86%.

LAND CAPABILITY: III - 46%; IV - 41%; VI - 13%.

SURFACE DRAINAGE: Excellent due to 12.2% av. slope of land for 1230 ft. No defined channel except 950 ft. grassed outlet on 9% grade beyond northern boundary headland and hedge row which operated only when planting was off-contour.

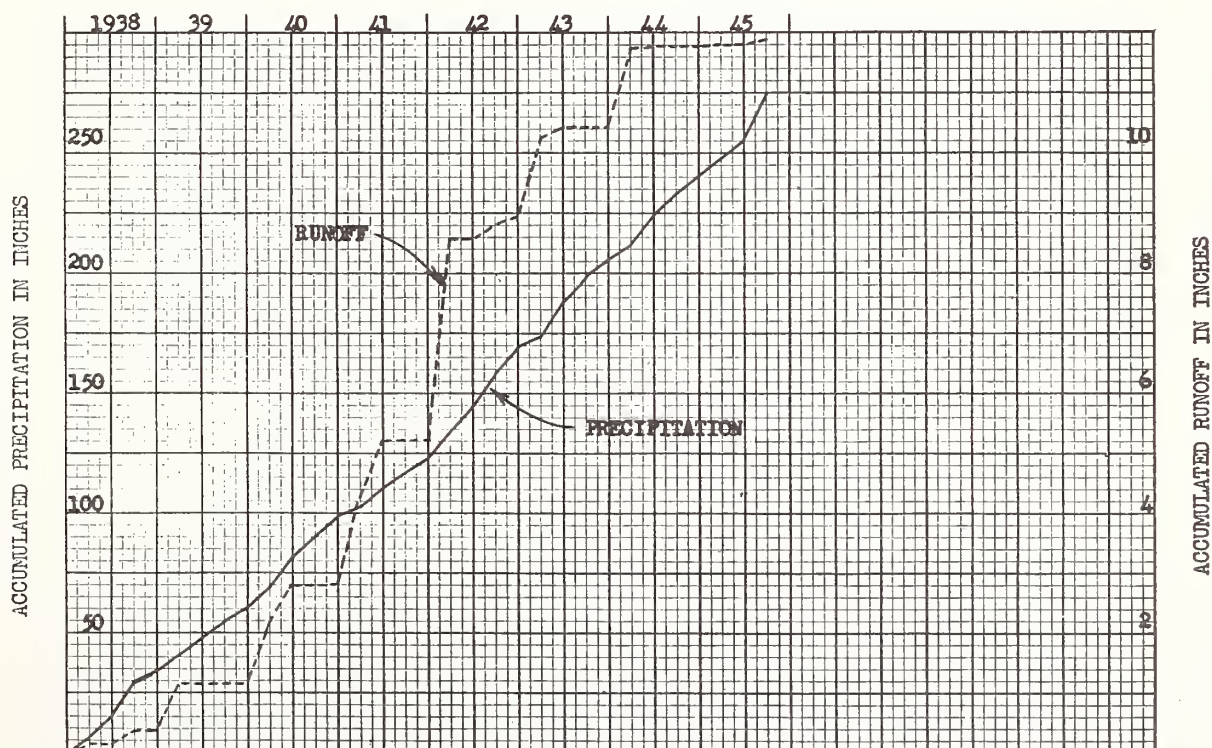
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broad-crested concrete V-notch weir with 2:1 crest slope; 6 hr. chart; precipitation - recording gage 57 ft. SE of weir, 12 hr. chart. Snow surveys in 1940, '41, and '45.

WATERSHED CONDITIONS: This watershed is a sub-drainage of Switzer Creek, lying at the top of the Coye tributary, 2192 miles upstream from the W-I runoff gaging station. Prior to 1937 it had been cultivated in 6 large fields, with rows considerably off contour. In 1937, a start was made toward establishing 12 contour strips, varying from 60 to 160 ft. in width, with a 3 or 4 year rotation in potatoes, oats, clover and timothy. From 1938 to 1943 all strips except one grew potatoes at least once, with yearly percentages of 34 to 11%, oats 38 to 18%, hay 33 to 65%. In 1944, ownership changed hands and in the last 2 years about 57% was planted to potatoes in 4 large fields considerable off contour. The remaining 43%, the steepest part, was left in uncut hay. Crop yields were good to excellent.

GENERALLY REPRESENTS: Sloping to steep cultivated lands at higher elevations in the Glaciated Shale and Sandstone Areas of New York and Pennsylvania on moderately rapid to very slowly permeable soils, with medium to slow internal drainage, excellent surface drainage and moderate to severe erosion in the southern tier of New York and northern Pennsylvania.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Cornell University Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches) Cohocton, New York Watershed W-III

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P	2.08	2.20	1.61	2.86	3.27	3.07	5.59	2.02	7.29	0.36	2.30	1.14	33.79
Q	0	T	.15	.01	0	.02	.14	0	.06	0	0	0	.38
1939 P	2.08	2.69	2.73	2.02	1.88	2.20	2.95	.77	2.89	3.05	.69	2.89	26.84
Q	0	.28	.50	0	0	0	0	0	0	0	0	0	.78
1940 P	1.11	4.16	3.25	3.58	3.50	6.12	2.33	2.02	4.28	2.09	2.35	3.29	38.08
Q	0	0	.98	.66	0	T	0	0	0	0	0	.02	1.66
1941 P	1.68	.71	1.91	3.11	1.98	2.57	3.10	1.21	1.53	2.44	1.57	2.76	24.57
Q	0	T	1.36	1.03	0	0	0	0	0	0	0	0	2.39
1942 P	1.36	2.91	5.90	2.31	4.20	4.70	8.41	1.79	3.83	2.88	3.16	4.04	45.49
Q	T	.11	3.23	T	0	.01	.25	0	0	0	0	.10	3.70
1943 P	2.57	.92	1.38	4.07	7.11	3.87	5.82	3.66	.83	4.71	2.08	.69	37.71
Q	0	.60	.74	.05	.11	0	0	0	0	T	0	0	1.50
1944 P	.91	2.27	2.74	3.50	4.03	4.78	3.62	1.79	2.81	1.72	2.35	3.23	33.75
Q	.02	.95	.36*	.04*	T	0	0	0	0	0	0	0	1.37
1945 P	1.97	2.69	2.87	3.09	5.27	4.62	5.48	2.90	6.08				34.97
Q	0	0	.02	0	T	0	.07	0	.04				.13
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* Av. P	1.72	2.32	2.80	3.07	3.91	3.99	4.66	2.02	3.69	2.46	2.07	2.58	35.29#
* Av. Q	T	.24	.92	.22	.01	T	.06	0	.01	T	0	.02	1.48#
Normal P	1.88	1.72	2.55	2.75	3.42	3.61	3.86	3.34	2.99	2.76	2.42	1.97	33.27

Notes: \*Averages of all months of record. #Sum of monthly averages. Normal P based on all monthly records at Baskinville, N.Y. (1895-1955) including 54 complete years and 7 partial years. Months of Jan. to May and Oct. to Dec. may include snow and snow melt. \*Partially estimated. Quality of Records: P, excellent; Q, excellent, except those partially estimated, which are good.



LOCATION: Monmouth Co., N.J.; 1 mi. SW of Freehold; unnamed tributary of Manasquan River.

AREA: 17.5 ac. (15.7 ac to 8-17-38) SHAPE: Roughly, 5-point star, 1,200 to 1,350 ft. across points.

SLOPES: 24% in 0-2% class; 61% in 2-5%; 13% in 5-10%; 2% in 10-15%. Aspect: S-SW.

SOILS: Unconsolidated coastal plain deposits. 1 Freehold sandy loam 91%; 2 Collington loam 9%.

Topsoil - 1 very weak structure; 2 weak; 1, 8 in. av.; 2, 9 in. av.; 1 moderately rapid permeability; 2 moderate. Subsoil - 1 weak medium subangular blocky structure; 2 moderate medium subangular blocky; both moderate permeability. Permeability and av. depth to substratum - 1, very rapid at 23 in.; 2, rapid at 27 in. Internal drainage - 1 rapid; 2 medium.

EROSION: 1 - 35%; 2 - 46%; 3 - 19%.

LAND CAPABILITY: I - 24%; II - 57%; III - 17%; IV - 2%.

SURFACE DRAINAGE: Excellent, except in 9 cropland terrace channels on average of 0.3% grade (total length 5,400 ft.) where small pondage occurs at a few small depressions; principal waterway - 1,605 ft. including 935 ft. of terrace outlet with average slope of 2.7% and 670 ft. of first terrace channel.

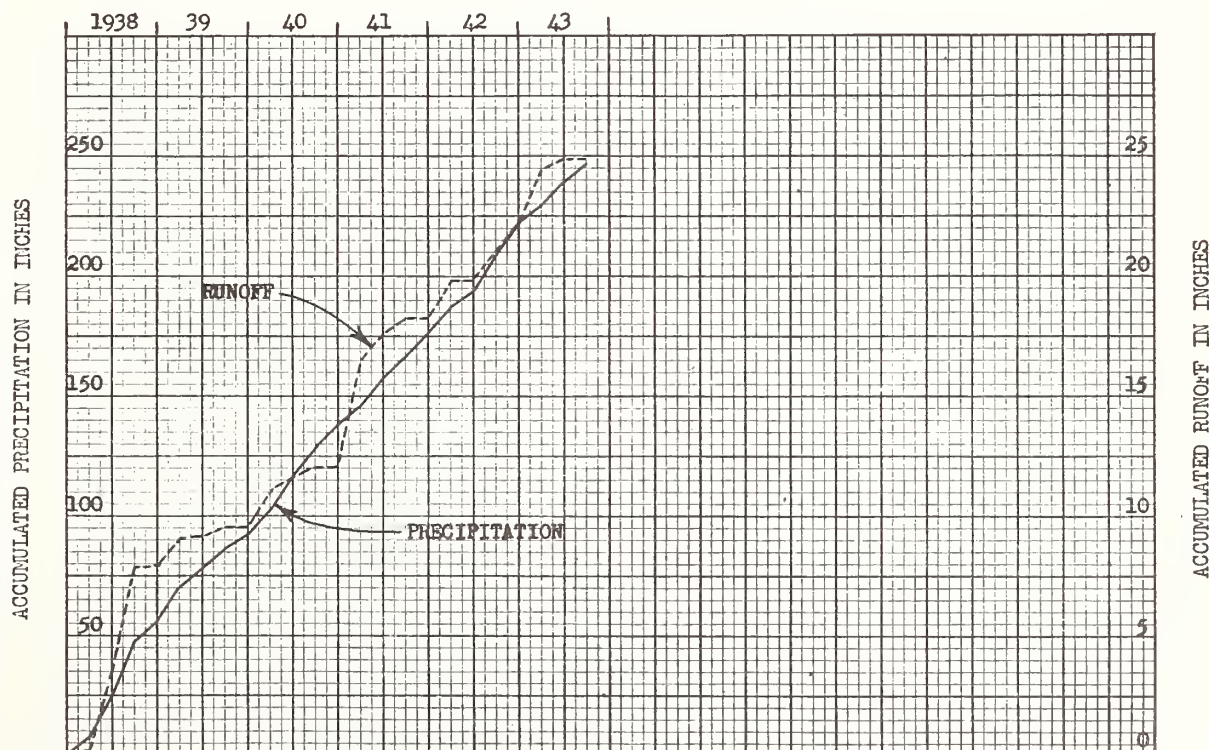
CHARACTER OF FLOW: Ephemeral; continuous.

INSTRUMENTATION: Runoff - 30" broad-crested concrete weir with 3:1 crest slope for 1 ft. depth, and 5:1 crest slope for 1 to 2.5 ft. depth, 6 hr. chart; precipitation - recording gage at runoff station, 12 hr. chart.

WATERSHED CONDITIONS: Prior to 1937, this area had been farmed in truck crops off the contour. In 1937, 9 cropland terraces were constructed to drain into a previously constructed and vegetated terrace outlet channel 16 ft. wide with a capacity of about 60 c.f.s. In Aug. 1938, the drainage area was increased from 15.7 ac. to 17.5 ac. by extending T-8 & 9. Terraces had vertical spacing of 2.4 to 4 ft. with lengths of 165 to 850 ft., average 600 ft.; average height of ridge .9 ft. Planting of truck crops was parallel with ridges. Crops: spinach, kale, beets, lettuce, carrots, turnips, broccoli, collards, chickory, corn, potatoes, etc. Most of area had manure application every two years. Sudan grass in some cases was grown and plowed under between short season crops. Winter cover crop of rye was occasionally grown on some areas, but most of area was generally bare in winter. At times, some vegetable plant residues were left on ground during the winter. Crop yields, good to excellent.

GENERALLY REPRESENTS: Sloping Northern Coastal Plain terraced cropland areas of moderate to very rapid permeabilities, medium to rapid internal drainage, excellent surface drainage and moderate erosion in eastern Maryland, Delaware and southern New Jersey.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of the USDA and the New Jersey Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches) Freehold, New Jersey Watershed W-I

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P	3.49	2.42	1.65	2.27	3.95	11.18	8.71	3.32	10.09	2.72	3.78	2.30	55.88
Q	.17	T	T	T	T	3.25	1.74	.51	2.19	T	.10	.01	7.97
1939 P	3.78	5.74	4.63	4.24	.29	3.22	.80	5.66	1.09	4.85	1.49	.94	36.73
Q	.40 <sup>e</sup>	.74	T	.05	0	.02	0	.33	0	T	T	0	1.54
1940 P	1.85	2.89	4.18	5.10	6.89	3.36	2.79	7.54	2.09	2.17	4.29	2.72	45.87
Q	.01	.68 <sup>e</sup>	.93	.01	.32	.15	0	.49	T	0	T	T	2.59
1941 P	3.47	2.49	1.89	2.10	2.12	7.86	6.65	2.17	.10	2.22	2.96	3.42	37.45
Q	1.11	1.46	1.80	0	0	1.23	.49	.08	0	0	0	.04	6.21
1942 P	2.79	2.73	6.15	1.43	2.46	2.70	6.57	3.44	5.51	2.83	6.29	4.05	46.95
Q	.23	.93	.38	0	0	0	.61	0	.51	0	.61	.79	4.06
1943 P	2.96	1.44	2.63	2.69	3.07	4.13	2.84	2.17	1.72				23.65
Q	.08	1.31	.70	T	0	.36	0	0	0				2.45
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*Av. P	3.06	2.95	3.52	2.97	3.13	5.41	4.73	4.05	3.43	2.96	3.76	2.69	42.66 <sup>#</sup>
*Av. Q	.33	.85	.64	.01	.05	.83	.47	.24	.45	T	.14	.17	4.18 <sup>#</sup>
Normal P	3.84	3.59	4.44	3.62	3.95	3.65	4.67	4.77	4.14	3.64	4.10	3.59	48.00

Notes: \*Averages of all months of record. <sup>#</sup>Sum of monthly averages. Normal P based on average of monthly records at Freehold, N.J. (1874-1955), including 46 complete years, 7 partial years and 29 years of no records. Months of Jan. to Apr. and Oct. to Dec. may include snow and snow melt.

<sup>e</sup>Partially estimated. Quality of records: P, excellent; Q, excellent.



**LOCATION:** Monmouth Co., N. J.; 2.7 mi. WSW of Freehold; Manalapan Brook, South River, Raritan River Basin.

**AREA:** 32.9 ac. (34.2 ac. to 2-20-39.) **SHAPE:** Roughly fan-shaped, 90° angle, 1200 to 1600 ft. radius.

**SLOPES:** 23% in 0-2% class; 44% in 2-5%; 31% in 5-10%; 2% in 10-15%. Aspect SW.

**SOILS:** Unconsolidated coastal plain deposits. 1 Freehold sandy loam 75%; 2 Collington loam 13%; 3 Freehold sandy loam (overwash variant) 12%. Topsoil - all weak structure; 1, 8 in. av.; 2, 11 in. av.; 3, 40 in. av.; 1 & 3 rapid permeability; 2 moderate. Subsoil - 1 weak to moderate, medium subangular blocky structure; 2 moderate medium subangular blocky; 3 weak medium subangular blocky; 1 moderate to rapid permeability; 2 moderate; 3 moderate to rapid. Permeability and average depth to substratum - 1, v. rapid at 27 in.; 2, rapid at 29 in.; 3, v. rapid at 45 in. Internal drainage - **EROSION:** 1 - 24%; 2 - 48%; 3 - 16%; + - 12%. | 1 & 3 rapid; 2 medium.

**LAND CAPABILITY:** I - 22%; II - 46%; III - 32%.

**SURFACE DRAINAGE:** Good to excellent, slight pondage above 3 x 6 ft. drop inlet culvert 160 ft. above station, and in township road with sandy dikes each side above culvert; 600 ft. diversion terrace and 550 ft. outlet added in Aug. 1940; principal waterway 1870 ft.; secondary waterway 1100 ft.

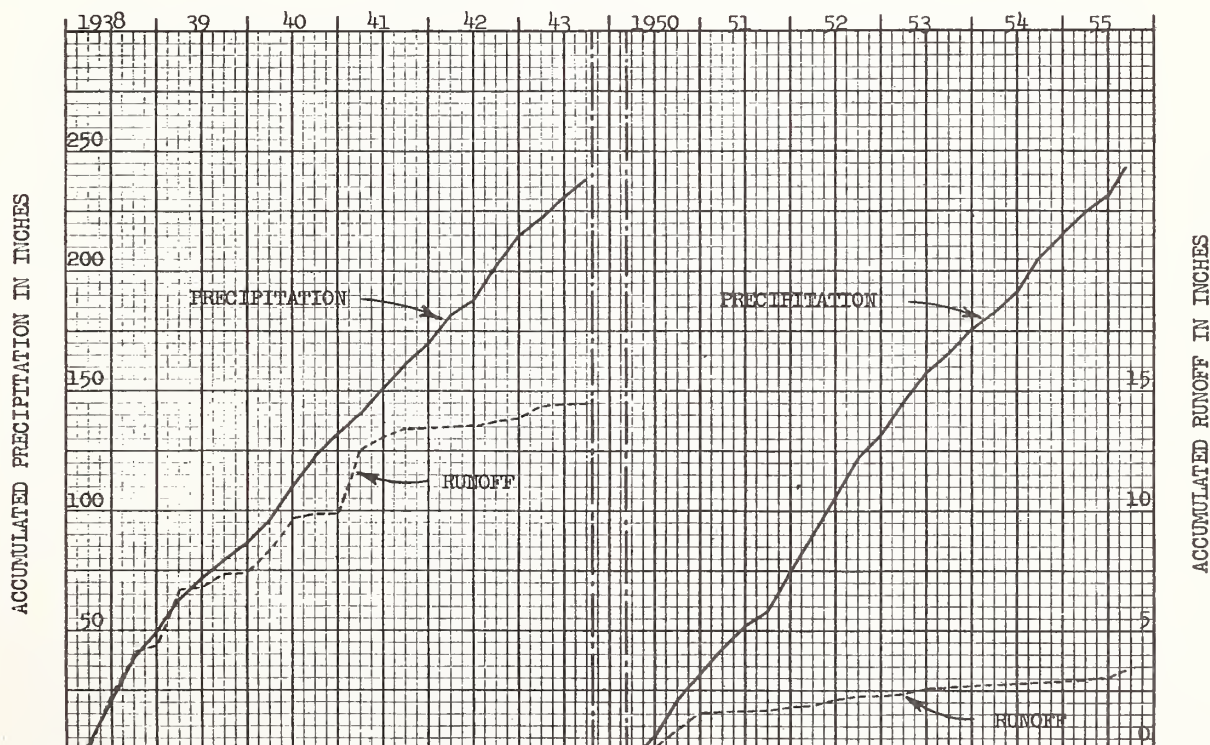
**CHARACTER OF FLOW:** Ephemeral; continuous.

**INSTRUMENTATION:** Runoff - 30" broad-crested concrete triangular weir with 2:1 crest slope for 3 ft., 6 hr. chart 1938-43; 24 hr. chart 1950-55; precipitation - 2 recording gages 12 hr. and weekly charts 1938-43, 1 recording gage with weekly chart 1950-53, 24 hr. chart 1953-55.

**WATERSHED CONDITIONS:** This watershed had always been farmed considerably off contour through 1938. In 1939, 15% of the area was contour stripped in 60 to 90 ft. strips, supplemented by a diversion terrace in 1940. The rest of the area remained unchanged: corn or potatoes were grown continuously on 28 to 77% of the acreage, averaging 56% row crops through 1943. The crop areas had winter cover of rye from November through March. Permanent roads, lanes and buildings comprised 6% of the area. For 1950-55 the whole area was in a peach and apple orchard planted on a rectangular layout, off-contour. Cultivation was up and down the slope between rows and some row crops were grown in 1950-51 between tree rows. In 1952 & 53 there was clean cultivation between rows except 3 ft. strip in tree rows. In 1954 & 55 a rotary cultivator was used leaving small pockets staggered 18 inches each way. It had winter cover of weeds and grass 1950-53, rye 1954-55.

**GENERALLY REPRESENTS:** Sloping Northern Coastal Plain cultivated areas of moderate to rapid permeabilities, medium to rapid internal drainage, excellent surface drainage, and moderate to severe erosion, in eastern Maryland, Delaware and southern New Jersey.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of the USDA and the New Jersey Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Freehold, N.J., Watershed W-II

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q			1.69 0	2.46 T	3.99 T	11.56 2.08	7.61 .63	3.36 .45	8.88 .98	2.74 0	4.39 .18	2.39 .01	49.07 4.33
1939 P Q	4.04 .94	5.79 1.33	4.55 .02 <sup>e</sup>	4.11 .11 <sup>e</sup>	.36 0	3.19 .03	.71 0	6.23 .53	1.02 0	4.90 .01	1.43 .01	1.00 0	37.33 2.98
1940 P Q	1.83 .06	2.82 .24	4.51 .70	5.60 .07	7.15 1.22	2.60 .01	2.76 0	7.63 .14	2.33 .06	2.23 0	4.24 .01	2.85 .01	46.55 2.52
1941 P Q	3.41 .82	2.14 .91	1.89 .94	2.03 0	1.87 0	7.86 .54	6.91 .33 <sup>e</sup>	2.03 0	.05 0	2.36 0	3.15 T	3.43 .01	37.13 3.55
1942 P Q	2.69 .01	2.90 .04	6.35 .03	1.40 0	2.24 0	2.08 0	7.23 .15	3.55 0	4.83 .11	3.16 T	5.15 .11	3.96 .06	45.54 .51
1943 P Q	2.67 T	1.42 .42	2.69 .05	2.82 .01	2.99 T	3.86 .10	2.65 .01	2.38 T	1.70 0				23.18 .59
38 to Av. P* 43 Av. Q*	2.93 .37	3.01 .59	3.61 .29	3.07 .03	3.10 .20	5.19 .46	4.65 .19	4.20 .19	3.13 .19	3.08 T	3.67 .06	2.73 .02	42.37# 2.59#
P Q													
P Q													
P Q													
P Q													
P Q													
1950 P Q					3.95 .01	1.63 .03 <sup>e</sup>	5.97 .21	6.65 .71	3.02 T	2.03 0	4.98 .21	3.44 .36	31.67 1.53
1951 P Q	3.52 .01	3.68 .02	4.80 .04	2.77 T	4.36 .03	2.21 0	1.71 0	3.22 .01	1.01 0	5.78 .18 <sup>e</sup>	6.44 .05	5.52 .04	45.02 .38
1952 P Q	6.26 .01	2.52 .01	5.04 .03	6.11 .05	7.78 .10	3.19 .08	4.14 .03	8.02 .09	3.22 .03	.86 T	3.63 .02	3.87 .01	54.64 .46
1953 P Q	4.71 .02	2.87 .02	7.58 .09	5.38 .04	4.80 .04	2.48 .02	2.59 .01	3.77 .02	.99 0	3.35 .02	3.05 .04	3.78 .04	45.35 .36
1954 P Q	1.24 0	1.60 0	3.79 .01	3.36 .01	4.05 .02	1.51 T	1.32 0	6.40 .05	6.69 .09	2.22 .01	3.82 .03	3.90 .03	39.90 .25
1955 P Q	.59 0	2.35 0	5.20 .03	2.28 T	2.01 .01	2.76 T	.16 0	11.79 .31 <sup>e</sup>					27.14 .35 <sup>e</sup>
50 to Av. P* 55 Av. Q*	3.26 .01	2.60 .01	5.28 .04	3.98 .02	4.49 .04	2.30 .02	2.65 .04	6.64 .20	2.99 .02	2.85 .04	4.38 .07	4.10 .10	45.52# .61#
P Q													
Av. P Av. Q													
Normal P	3.84	3.59	4.44	3.62	3.95	3.65	4.67	4.77	4.14	3.64	4.10	3.59	48.00

**Notes:** \* Averages of all months of record. # Sum of monthly averages. Normal P based on monthly records at Freehold, N.J. (1874-1955) including 46 complete years, 7 partial years, and 29 years of no records. Oct. to Apr. may include snow and snow melt. <sup>e</sup> Estimated. Quality of records: P, excellent; Q, excellent, except those estimated, which are fair to good.



## FREEHOLD, NEW JERSEY Watershed W-III

LOCATION: Monmouth Co., N.J.; 1.4 mi. SW of Freehold; unnamed tributary of Manasquan River.

AREA: 51.8 ac.

SHAPE: Broad paddle, 850 ft. wide by 2,750 ft. long.

SLOPES: 52% is in 0-2% class; 31% in 2-5%; 15% in 5-10%; 2% in 10-15%. Aspect: S-SE.

SOILS: Unconsolidated coastal plain deposits. 1 Freehold sandy loam 48%; 2 Freehold loam 36%; 3 Colemantown sandy loam and loam 11%; 4 Holmdel sandy loam 5%. Topsoil - all weak structure; 1, 11 in. av.; 2, 13 in. av.; 3, 20 in. av.; 4, 10 in. av.; 1 & 4 moderately rapid permeability; 2 moderate; 3 moderately slow to rapid. Subsoil - 1 weak to moderate subangular blocky structure; 2 mod. med. subangular blocky; 3 mod. med. angular blocky; 4 weak med. subangular blocky; 1, 2 & 4 moderate permeability; 3 slow to very slow. Permeability and av. depth to substratum - 1, rapid to slow at 25 in; 2, mod. rapid at 27 in; 3, very slow at 32 to 35 in.; 4, slow at 29 in. Internal drainage - 1 rapid to slow; 2 medium; 3 & 4 slow.

EROSION: 1 - 49%; 2 - 27%; 3 - 14%; 4 - 10%.

LAND CAPABILITY: I - 48%; II - 21%; III - 29%; IV - 2%.

SURFACE DRAINAGE: Good, except higher flows restricted by two 24 in. circular culverts 740 ft. and 1,870 ft. above gaging station; principal waterway 2,910 ft., average slope 1.4%; narrow, V-shaped channel most of length.

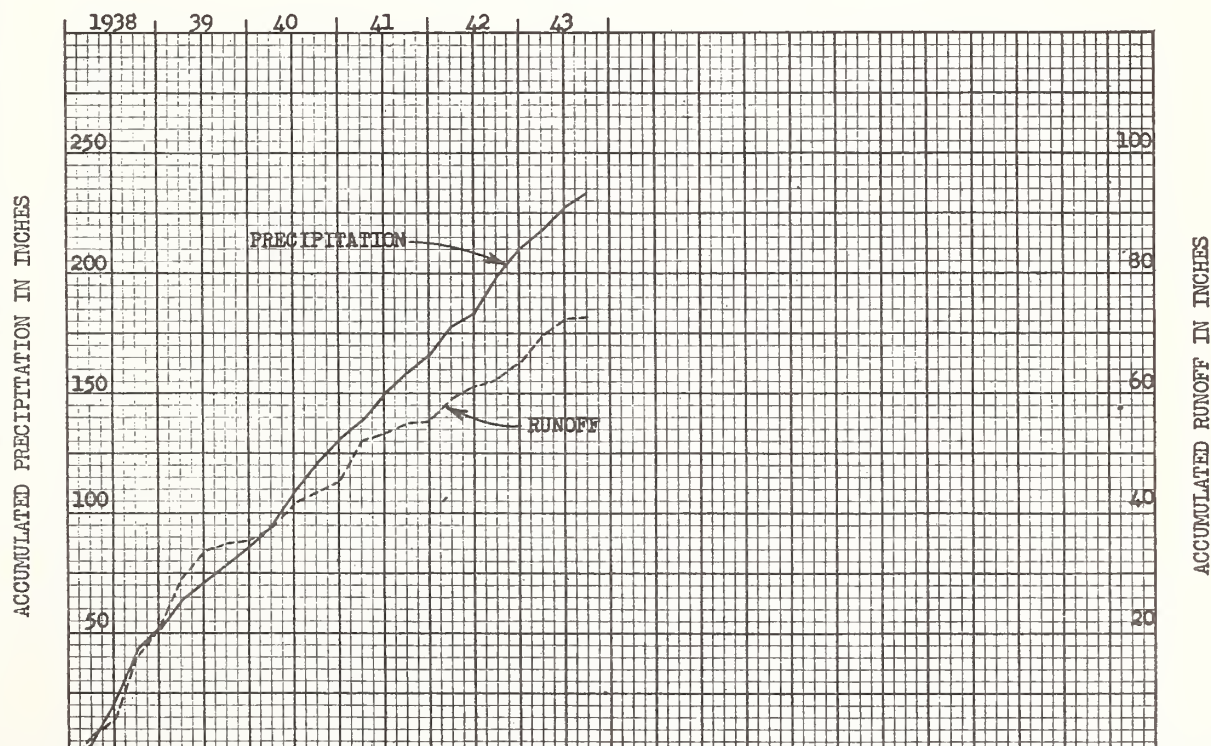
CHARACTER OF FLOW: Perennial; continuous.

INSTRUMENTATION: Runoff - 30" broad-crested V-notch concrete weir with 2:1 crest slope, 6 hr. chart 1938-40, 24 hr. chart 1940-43; precipitation - recording gages at runoff station, weekly chart and 190 ft. W. of center of drainage area, 12 hr. chart.

WATERSHED CONDITIONS: The watershed included parts of 4 farms with cover ranging from permanent pasture heavily grazed (22%), to potato and other fields planted off-contour (average of 33%) with a winter cover of rye. 15% of the area was farmsteads, pavements, roadways, drainage ways, etc. The remaining 30% was generally in strawberries and gardens (6%), hay and alfalfa, grain, corn, soybeans and other miscellaneous crops (22%), with an idle area of brush and weeds (2%). The area of row crops varied from 30% to 49% during the period. Some of the wet Holmdel soil area had been drained with tile. Small amounts of the flow were utilized directly by 40 to 60 dairy cows and for water for crop spraying. Crop yields were good to excellent. Considerable silt from fields and raw stream banks was discharged in times of high flow, particularly in the summer and fall of 1938, including the Sept. 16-21 hurricane.

GENERALLY REPRESENTS: Sloping Northern Coastal Plain dairy and cropland areas with very slow to rapid permeabilities, slow to rapid internal drainage, good surface drainage and moderate to moderately severe erosion in eastern Maryland, Delaware and southern New Jersey.

ACCUMULATED PRECIPITATION AND RUNOFF







**LOCATION:** Montgomery Co., Md.; 5 mi. N. of College Park; Little Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

**AREA:** 8.22 ac.

**SHAPE:** Roughly rectangular, about 325 ft. wide by 1,100 ft. long.

**SLOPES:** 8% is in 0-2% class; 49% in 2-5%; 43% in 5-10%. Aspect S-SW.

**SOILS:** Unconsolidated coastal plain deposits. 1 Beltsville loam 38%; 2 Leonardtown 32% & 3 Berwyn 20% silt loams; 4 Chillum gravelly loam 10%. Topsoil - 1, 2, 3 & 4 weak structure; 1, 2 & 4 av. 8 in.; 3 av. 22 in.; all moderate permeability. Subsoil - 1, 3 & 4 moderate medium subangular blocky structure; 2 moderate medium platy structure; permeability, 1 & 3 moderately slow, 2 slow, 4 moderate. Permeability and av. depth to impeding stratum - 1, slow at 20 in.; 2, very slow at 17 in.; 3, slow at 29 in.; 4, moderately slow at 28 in. Internal drainage - 1 & 3 slow; 2 very slow; 4 medium.

**LAND CAPABILITY:** II - 28%; III - 72%.

**SURFACE DRAINAGE:** Good - principal waterway 1,190 ft., average slope 2.5%; area is half of a natural watershed (W-2 is other half), overland flow to SW boundary where it is diverted by earth dikes to measuring station.

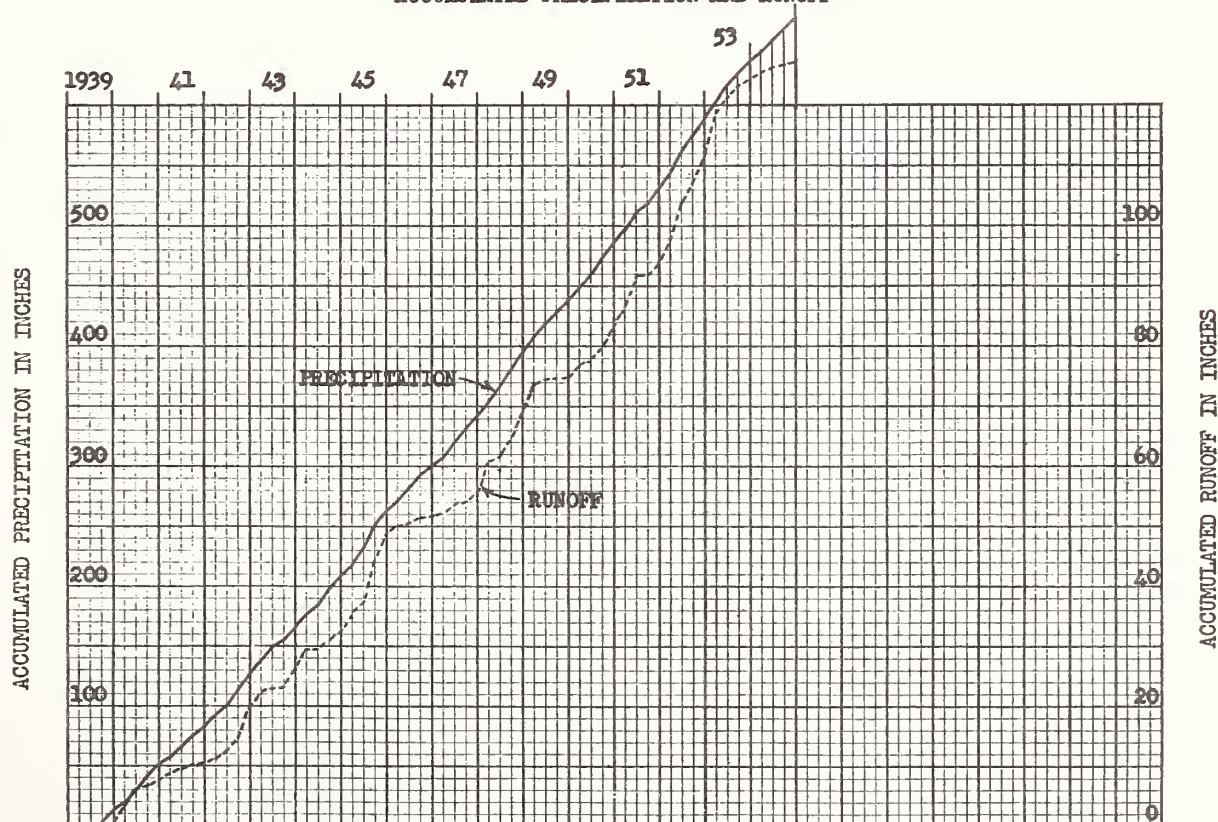
**CHARACTER OF FLOW:** Ephemeral, continuous. In winter, spring or periods of protracted precipitation, this watershed may have continuous flows for as long as a week from wet weather seep areas near weir.

**INSTRUMENTATION:** Runoff - 16" broad-crested concrete V-notch weir with 3:1 crest slope; 6 hr. chart, 24 hr. after Jan. 1947; precipitation - recording gage on dividing dike, 12 hr. chart.

**WATERSHED CONDITIONS:** Prior to 1939 - farmed as part of cultivated field, usually in row crops, grain and hay, not on contour; 1939-45 and 1949-54 - farmed in 7 contour strips about 96 ft. wide, in rotation of corn, winter grain (generally wheat) and hay; 1946-48 - farmed in 3 fields up and down the slope in rotation of corn, wheat and hay. Acreage in corn or wheat varied from 29% to 32% of area for various years, - acreage in hay and permanent grass (channels, turning lands and dikes) varied from 38% to 41%. Average organic matter in topsoil plowed for corn, 1949-51, was 0.49%. Corn yields good, except in summer droughts of 1941, 43 and 44, and wet springs and summers of 1950 and 53. Hay yields increased 60% in period 1946-54 over initial 6 years.

**GENERALLY REPRESENTS:** Sloping cultivated Northern Coastal Plain areas of moderate to very slow permeabilities, slow to very slow internal drainage, good surface drainage and moderate erosion in Eastern Maryland, Delaware and Southern New Jersey.

ACCUMULATED PRECIPITATION AND RUNOFF



## MONTHLY PRECIPITATION AND RUNOFF (Inches) College Park, Md., Watershed W-1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P	-	-	-	-	-	-	-	-	4.45	3.98	1.08	2.28	11.79
Q									.27	.43	.01	T	.71
1940 P	1.64	2.81	3.35	6.20	3.08	0.85	3.85	5.48	1.52	2.18	5.60	2.64	39.20
Q	.10	1.72	1.21	2.60	.02	T	T	.35	.01	0	.84	.40	7.25
1941 P	3.28	1.03	2.00	2.92	1.76	5.50	4.41	4.35	.39	1.21	1.08	3.27	31.20
Q	.49	.11	.36	.58	0	.29	.01	.37	0	0	0	T	2.21
1942 P	2.17	2.09	6.39	.63	3.91	2.90	3.73	8.96	2.29	8.96	1.96	3.73	47.72
Q	0	T	1.22	1.00	.10	T	0	2.36	T	3.76	.02	1.13	9.59
1943 P	2.62	2.03	4.34	3.25	4.79	3.06	1.24	1.55	2.69	4.52	4.94	1.58	36.61
Q	T	1.77	1.01	.37	.18	.12	0	T	0	.17	2.39	.11	6.12
1944 P	3.24	2.38	5.54	3.42	1.88	1.85	1.60	5.74	7.09	3.31	3.63	3.46	43.14
Q	1.42	.01	1.99	.18	.03	.01	0	.58	.56	.07	.89	.87	6.61
1945 P	3.32	3.20	1.31	3.15	4.85	5.70	13.36	3.28	4.99	1.26	4.73	5.95	55.10
Q	1.80	1.16	.06	.01	.50	1.27	5.02	1.47	.47	0	.77	3.95	16.48
1946 P	1.80	3.16	2.17	1.42	6.18	3.81	5.00	2.79	2.94	2.51	1.35	2.30	35.43
Q	.14	.74	.03	0	.12	.38	1.13	.04	T	0	0	.01	2.59
1947 P	4.17	1.60	1.58	3.74	4.97	5.18	4.66	2.21	4.73	1.40	6.13	1.56	41.93
Q	.60	T	.03	.02	.53	1.02	.24	0	.12	T	1.49	.04	4.09
1948 P	4.83	1.80	4.54	2.38	6.56	5.20	3.34	7.63	2.62	3.23	6.39	5.41	53.93
Q	1.89	1.87	1.33	.19	.66	.25	.10	2.78	.04	.01	1.83	2.61	13.56
1949 P	5.75	3.86	3.51	2.51	4.70	3.08	3.81	4.49	3.50	3.25	1.32	2.55	42.33
Q	2.42	1.53	.78	.14	.28	T	.06	.04	.01	.01	0	.01	5.28
1950 P	2.28	3.53	4.40	1.53	5.73	4.23	4.33	4.68	6.80	3.43	4.02	3.72	48.68
Q	.05	1.54	1.03	0	.60	.04	.17	.55	1.53	.48	1.48	1.59	9.06
1951 P	2.89	2.99	3.27	4.19	2.08	11.20	2.20	.76	2.90	1.85	5.41	4.90	44.64
Q	.23	1.65	.72	.88	0	4.80	0	0	0	0	T	1.86	10.14
1952 P	4.92	2.01	4.75	8.27	7.39	3.65	3.38	6.46	5.11	.76	7.65	3.84	58.19
Q	1.96	.80	1.37	4.14	1.42	.07	.03	.52	2.92	0	3.82	1.15	18.20
1953 P	3.97	2.76	7.83	5.15	7.77	2.09	2.48	3.59	4.22	2.72	2.17	3.86	48.66
Q	2.07	.53	4.25	.94	1.58	.17	0	1.03	.51	T	0	1.38	12.46
1954 P	2.51	1.07	4.10	3.44	2.43	3.46	2.36	6.22	1.63	3.93	2.34	3.25	36.74
Q	.43	T	.54	.04	T	.68	.06	.11	0	T	0	.51	2.37
P													
Q													
P													
Q													
P													
Q													
* Av. P	3.29	2.42	3.94	3.48	4.54	4.12	3.98	4.55	3.56	2.97	3.91	3.47	44.23
* Av. Q	.91	.90	1.06	.74	.40	.61	.45	.68	.41	.30	.90	1.04	8.40
Normal P	3.30	2.89	3.58	3.50	4.03	3.91	4.01	4.33	3.53	2.86	2.73	3.05	41.72

Notes: \* Does not include part year amounts for 1939. Normal P based on 66 yr. record (1889-1954) at College Park, Md. Months of Jan. to April and Oct. to Dec. may include snow and snow melt. Quality of records: P, excellent; Q, excellent to good.



**LOCATION:** Montgomery Co., Md.; 5 mi. N. of College Park; Little Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

**AREA:** 7.44 ac.

**SHAPE:** Roughly rectangular, about 300 ft. wide by 1,100 ft. long.

**SLOPES:** 47% is in 2-5% class; 37% in 5-10%; 16% in 10-15%. Aspect E-SE.

**SOILS:** Unconsolidated coastal plain deposits. 1 Chillum loam & gravelly loam 40%; 2 Hyattsville loam 20%; 3 Berwyn silt loam 16%; 4 Beltsville loam 13%; 5 Groom gravelly loam 11%. Topsoil - 1, 2, 3, 4 & 5 weak structure; 1, 8 in. av.; 2, 31 in. av.; 3, 18 in. av.; 4, 9 in. av.; 5, 7 in. av.; all moderate permeability. Subsoil - 1, 2, 3 & 4 moderate medium subangular blocky structure; 5, no subsoil; permeability, 1 & 2 moderate, 3 & 4 moderately slow. Permeability and av. depth to impeding stratum - 1, moderately slow at 31 in.; 2, moderate at 48 in. (no impedance); 3, slow at 18 in.; 4, **EROSION:** 2 - 59%; 3 - 5%; 4 - 36%.

slow at 22 in.; 5, moderate at 7 in. (no impedance). Internal drainage - 1, 2 & 5 medium; 3 & 4 slow.

**LAND CAPABILITY:** II - 59%; III - 25%; IV - 16%.

**SURFACE DRAINAGE:** Excellent - principal waterway 1,240 ft. average slope 2.7%; area is lower half of a natural watershed (adjacent to W-1), overland flow to SE boundary where it is diverted by earth dikes to measuring station.

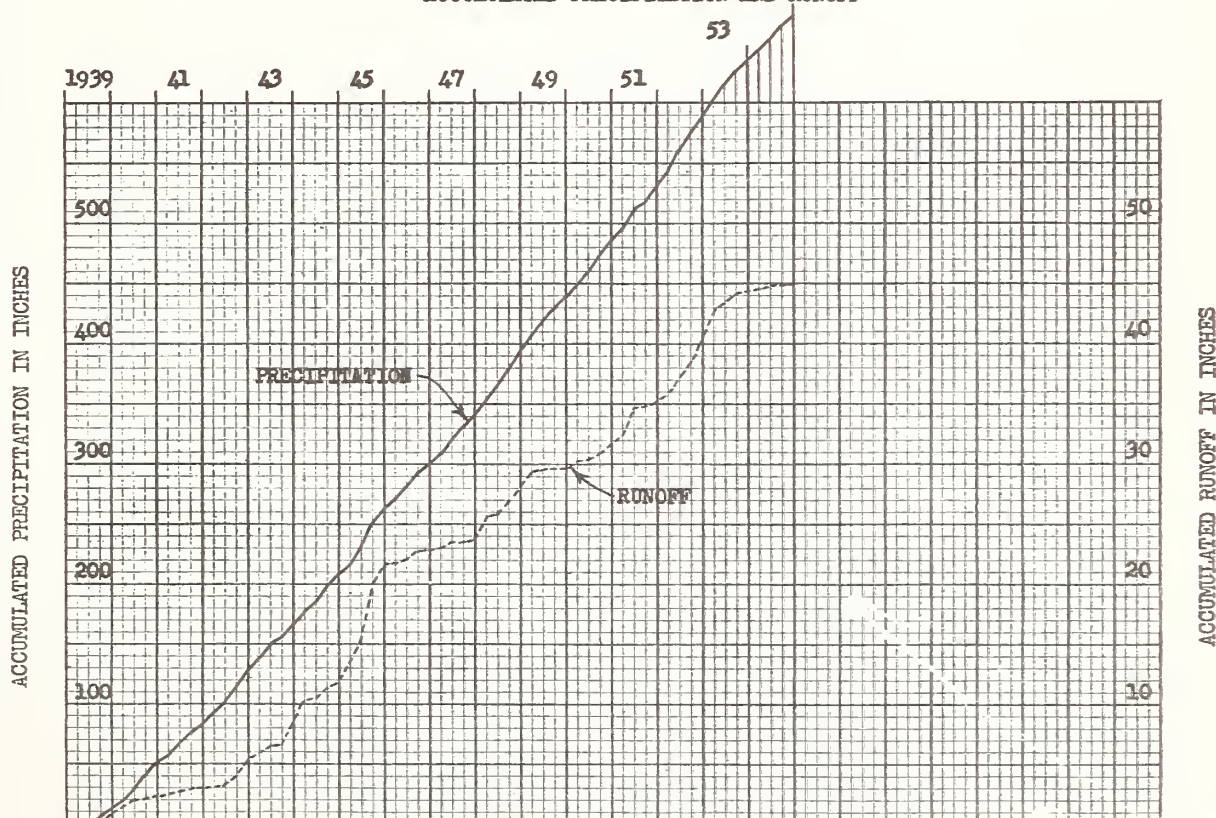
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 16" broad-crested concrete V-notch weir with 3:1 crest slope, 6 hr. chart; precipitation - recording gage on dividing dike, 12 hr. chart.

**WATERSHED CONDITIONS:** Prior to 1939 the gentler slopes were farmed as part of a cultivated field usually in row crops, grain and hay, not on contour, the steeper slopes had been allowed to grow up in grass and brush, which were cleared in 1938; 1939-42 and 1946-54 - farmed in 6 contour strips about 96' wide in a 3 year rotation of corn, winter grain (generally wheat) and hay; 1943-45 - farmed in 3 fields planted up and down the slope in rotation of corn, wheat and hay. Acreage in corn or wheat varied from 26 to 32% of watershed area for various years, - acreage in hay and permanent grass (channels, turning lands and dikes) varied from 38 to 45%. Average organic matter in topsoil plowed for corn, 1949-51, was 0.63%. Corn yields good to excellent except wet spring of 1953. Hay yields doubled 1946-54 over initial 6 years.

**GENERALLY REPRESENTS:** Sloping cultivated Northern Coastal Plain areas of moderate to slow permeabilities, medium to slow internal drainage, excellent surface drainage and moderate erosion in Eastern Maryland, Delaware and Southern New Jersey.

ACCUMULATED PRECIPITATION AND RUNOFF



## MONTHLY PRECIPITATION AND RUNOFF (Inches) College Park, Md., Watershed W-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q									4.45 .17	3.98 .26	1.08 .01	2.28 .01	11.79 .45
1940 P Q	1.64 .06	2.81 .42	3.35 .16	6.20 .72	3.08 .01	0.85 0	3.85 T	5.48 .14	1.52 T	2.18 0	5.60 .14	2.64 .06	39.20 1.71
1941 P Q	3.28 .04	1.03 .01	2.00 .02	2.92 .07	1.76 0	5.50 .30	4.41 T	4.35 .22	.39 0	1.21 0	1.08 0	3.27 0	31.20 .66
1942 P Q	2.17 0	2.09 0	6.39 .13	.63 .18	3.91 .03	2.90 0	3.73 0	8.96 .66	2.29 T	8.96 1.25	1.96 T	3.73 .24	47.72 2.49
1943 P Q	2.62 0	2.03 .31	4.34 .19	3.25 .13	4.79 .22	3.06 .22	1.24 0	1.55 0	2.69 0	4.52 .08	4.94 1.54	1.58 .31	36.61 3.00
1944 P Q	3.24 1.37	2.38 T	5.54 .49	3.42 .03	1.88 .01	1.85 .01	1.60 0	5.74 .41	7.09 .57	3.31 .05	3.63 .23	3.46 .24	43.14 3.41
1945 P Q	3.32 1.15	3.20 .53	1.31 .02	3.15 .02	4.85 .40	5.70 1.17	13.36 3.75	3.28 .90	4.99 .19	1.26 0	4.73 .29	5.95 1.37	55.10 9.79
1946 P Q	1.80 .05	3.16 .18	2.17 .03	1.42 0	6.18 .10	3.81 .12	5.00 .85	2.79 T	2.94 0	2.51 0	1.35 0	2.30 0	35.43 1.33
1947 P Q	4.17 .11	1.60 0	1.58 .02	3.74 .01	4.97 .06	5.18 .30	4.66 .01	2.21 0	4.73 0	1.40 0	6.13 .35	1.56 T	41.93 .86
1948 P Q	4.83 .69	1.80 1.00	4.54 .21	2.38 .02	6.56 .05	5.20 .04	3.34 0	7.63 1.14	2.62 0	3.23 T	6.39 .53	5.41 .63	53.93 4.31
1949 P Q	5.75 .60	3.86 .38	3.51 .30	2.51 .07	4.70 .21	3.08 T	3.81 .02	4.49 .01	3.50 0	3.25 T	1.32 0	2.55 0	42.33 1.59
1950 P Q	2.28 T	3.53 .21	4.40 .31	1.53 0	5.73 .11	4.23 T	4.33 .04	4.68 .19	6.80 .31	3.43 .04	4.02 .62	3.72 .35	48.68 2.18
1951 P Q	2.89 .04	2.99 .37	3.27 .13	4.19 .23	2.08 0	11.20 2.27	2.20 0	.76 0	2.90 0	1.85 0	5.41 0	4.90 .33	44.64 3.37
1952 P Q	4.92 .26	2.01 .15	4.75 .20	8.27 1.24	7.39 .43	3.65 .02	3.38 .02	6.46 .07	5.11 1.04	.76 0	7.65 1.86	3.84 .18	58.19 5.47
1953 P Q	3.97 .47	2.76 .09	7.88 1.77	5.15 .27	7.77 .40	2.09 .03	2.48 0	3.59 .38	4.22 .12	2.72 0	2.17 0	3.86 .28	48.66 3.81
1954 P Q	2.51 .04	1.07 0	4.10 .03	3.44 .01	2.43 0	3.46 .37	2.36 .01	6.22 .03	1.63 0	3.93 T	2.34 0	3.25 .05	36.74 .54
P Q													
P Q													
P Q													
P Q													
* Av. P * Av. Q	3.29 .33	2.42 .24	3.94 .27	3.48 .20	4.54 .14	4.12 .32	3.98 .31	4.55 .28	3.56 .15	2.97 .09	3.91 .37	3.47 .27	44.23 2.97
Normal P	3.30	2.89	3.58	3.50	4.03	3.91	4.01	4.33	3.53	2.86	2.73	3.05	41.72

Notes: \* Does not include part year amounts for 1939. Normal P based on 66 yr. record (1889-1954) at College Park, Md. Months of Jan. to April and Oct. to Dec. may include snow and snow melt. Quality of records: P, excellent; Q, excellent.



**LOCATION:** Prince Georges Co., Md.; 5 mi. E. of College Park; Little Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

**AREA:** 5.66, 6.06, 5.02 ac. **SHAPE:** Roughly rectangular, 300 ft. wide by 880 ft. long.

**SLOPES:** 9% is in 0-2% class; 59% in 2-5%; 32% in 5-10%. Aspect N-NW.

**SOILS:** Unconsolidated coastal plain deposits. 1 Sassafras sandy loam 67%; 2 Sassafras loam 19%; 3 Hyattsville loam and silt loam 9%; 4 Chillum loam 5%. Topsoil - all weak structure; 1, 9 in. av.; 2, 11 in. av.; 3, 20 in. av.; 4, 13 in. av.; 1 moderately rapid permeability; 2, 3 & 4 moderate. Subsoil - moderate medium subangular blocky structure; all moderate permeability. Permeability and av. depth to substratum - 1, rapid at 24 in.; 2, rapid at 27+ in.; 3, moderate at 48+ in.; 4, moderately slow at 38 in. Internal drainage - 1, 2, 3 & 4 medium.

**EROSION:** 1 - 10%; 2 - 80%; 3 - 10%.

**LAND CAPABILITY:** I - 8%; II - 60%; III - 32%.

**SURFACE DRAINAGE:** Excellent - principal waterway 1290 ft., average slope 2.1%; area is eastern portion of a 17 acre natural watershed (W-4 is another adjacent portion) defined by dikes or terraces; overland flow to NW corner where it is directed by earth dikes to gaging station. Weir flow rates

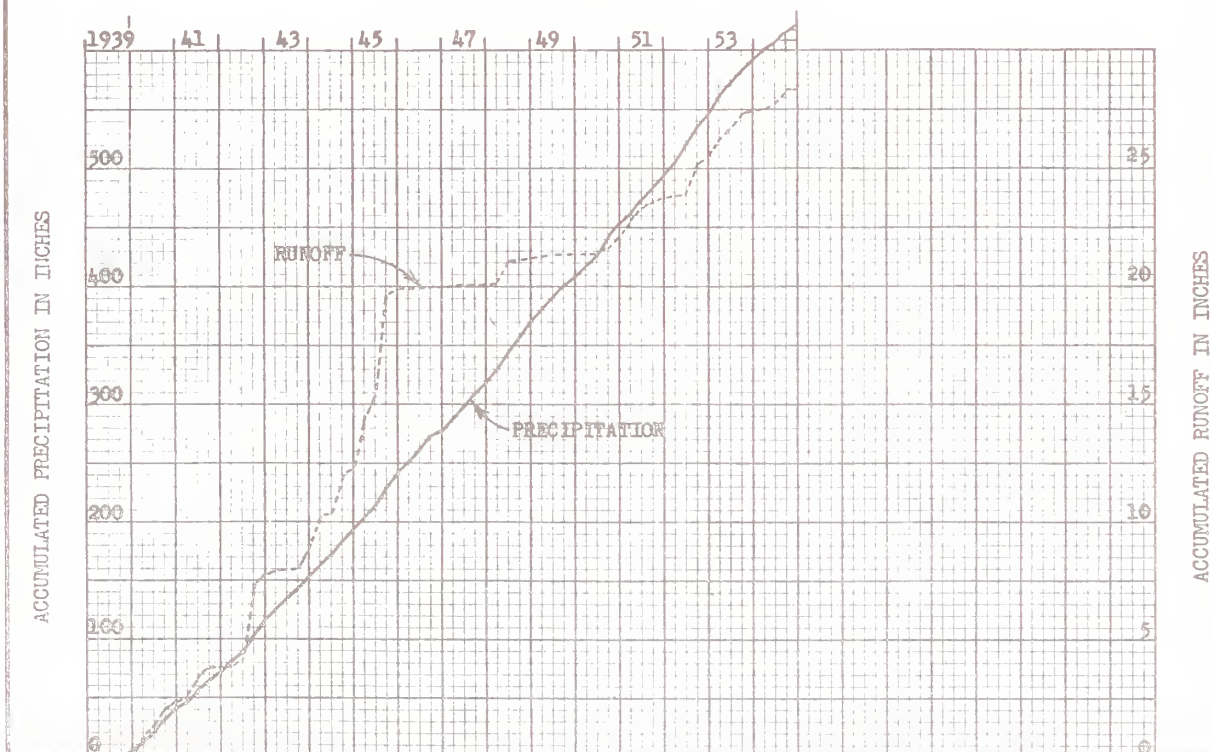
**CHARACTER OF FLOW:** Ephemeral, continuous. | corrected for pondage back of weir.

**INSTRUMENTATION:** Runoff - 16" broad-crested concrete weir with 3:1 crest slope, 6 hr. chart; precipitation - recording gage on dividing dike in common with W-4, 12 hr. chart.

**WATERSHED CONDITIONS:** The 5.66 acre area had been in cultivation for many years, but was in pasture and grazed by horses when measurements were started in 1939. It was left in common pasture 18 months. In April 1941, the area was increased to 6.06 acres by extending the weir dike easterly to square up the drainage area and make it equal to W-4, and was plowed and drilled to soybeans up and down the slope. These were later disked down and a winter cover of rye established. In 1942, sweet corn was planted up and down the slope, the stalks disked down and winter cover of rye again provided. In 1943-44, lima beans in 42" rows were planted on the contour, with rye winter cover. In September 1944, 4 cropland terraces were built by moldboard plow and the upper terrace diverted outside, reducing the drainage area to 5.02 acres. Corn, peas and grain were planted in 1945. From 1946 to 54, raspberries were grown on 40 to 60% of the area (no winter cover) and the rest of the area was in grass. Truck yields ranged from excellent in wet summers to poor in dry years.

**GENERALLY REPRESENTS:** Sloping cultivated Northern Coastal Plain areas of moderately slow to rapid permeabilities, medium internal drainage, excellent surface drainage and moderate erosion in eastern Maryland, Delaware and southern New Jersey.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Maryland Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches) College Park, Maryland Watershed W-3

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939	P										1.40	1.03	2.16	4.59
	Q										.02	.04	.03	.09
1940	P	1.46	2.75	3.21	5.96	3.12	.68	3.47	5.17	1.43	2.13	5.54	2.65	37.57
	Q	.27	.33	.10	.50	.08	0	.08	.61	.03	.01	.26	.03	2.30
1941	P	3.01	.87	1.74	2.65	1.64	6.08	4.75	3.96	.47	1.19	1.06	3.16	30.58
	Q	.09	0	.01	.03*	0	1.04	.09	.21	0	0	0	.02	1.49
1942	P	2.00	2.03	5.91	.61	3.74	2.96	3.52	9.17	2.31	8.83	1.96	3.73	46.77
	Q	0	.01	.06	.01	.24	.15	.16	3.00	.01	.34	0	.04	4.02
1943	P	2.40	1.79	3.84	2.97	4.56	3.16	.96	1.53	2.69	4.21	4.96	1.52	34.59
	Q	0	.03	.03	.02	.03	.01	0	.05	.01	.05	.74	.16	1.13
1944	P	3.11	2.07	5.11	3.34	1.71	1.78	1.52	5.96	7.06	3.18	3.52	3.15	41.51
	Q	1.27	0	.04	0	0	0	0	.72	1.01**	.03	.08	.09	3.24
1945	P	2.94	2.88	1.20	3.04	4.81	5.35	9.08	3.19	5.07	1.31	4.67	5.67	49.21
	Q	1.72	.36	0	.01	.19	.98	3.29	.69	.06	0	.06	.17	7.53
1946	P	1.60	2.86	2.10	1.50	6.19	3.23	4.87	2.85	3.06	2.56	1.39	2.00	34.21
	Q	0	.03	0	0	.02	.02	.05	0	0	0	0	0	.12
1947	P	3.96	1.13	1.22	3.69	5.08	5.07	4.08	2.41	4.69	1.48	6.33	1.35	40.49
	Q	.01	0	0	.01	.04	.03	0	0	0	0	.06	0	.15
1948	P	4.90	1.55	4.22	2.45	7.56	6.08	3.04	7.73	2.55	3.13	6.18	1.29	50.68
	Q	.14	.72	.03	0	.03	.03	0	.05	0	0	.04	.06	1.10
1949	P	5.19	2.95	3.10	1.90	4.47	2.83	3.47	4.39	3.29	3.12	1.23	1.96	37.90
	Q	.04	.01	.02	0	.02	0	0	.02	0	0	0	0	.11
1950	P	2.08	3.27	3.77	1.41	4.73	4.14	4.77	4.39	6.51	3.00	3.56	3.24	44.87
	Q	0	.01	.03	0	.04	.06	.31	.21	.24	.04	.20	.16	1.30
1951	P	2.41	2.70	2.76	4.03	2.09	10.66	1.73	.96	2.39	1.76	5.13	4.42	41.04
	Q	.02	.09	.03	.02	0	.72	.01	0	.08	0	.05	.06	1.08
1952	P	4.51	1.94	4.29	7.90	6.50	3.28	2.90	5.62	5.25	.72	7.49	3.60	54.00
	Q	.05	.02	.05	.12	.07	0	.02	.29	.92	0	.23	.06	1.83
1953	P	3.53	2.48	7.23	4.78	6.96	1.95	2.29	3.08	4.46	2.56	2.10	3.42	44.84
	Q	.08	.02	.64	.08	.27*	0	0	.49	.31	0	0	.09	1.98
1954	P	2.14	.88	3.69	3.49	2.63	2.95	2.35	6.02	1.61	4.10	2.18	3.07	35.11
	Q	0	0	.01	.01	0	.23	.11	.42	0	.03	0	.03	.84
1955	P	.28												
	Q	0												
	P													
	Q													
	P													
	Q													
	P													
	Q													
# Av. P		3.02	2.14	3.56	3.31	4.39	4.01	3.52	4.43	3.52	2.89	3.82	2.95	41.56
# Av. Q		.25	.11	.07	.05	.07	.22	.27	.45	.18	.03	.11	.07	1.88
Normal P		3.30	2.89	3.58	3.50	4.03	3.91	4.01	4.33	3.53	2.86	2.73	3.05	41.72

Notes: # Does not include part year amounts for 1939 and 1955. Normal P based on 66 yr. record (1889-1954) at College Park, Md. Months of Jan. to April and Oct. to Dec. may include snow and snow melt.

\* Area increased from 5.66 ac. to 6.06 ac. on 4-25-41. \*\*Area decreased from 6.06 ac. to 5.02 ac. on 9-27-44. \* Partially estimated. Quality of records: P, excellent; Q, excellent.



**LOCATION:** Prince Georges Co., Md.; 5 mi. N. of College Park; Little Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

**AREA:** 8.01, 6.11, 5.03 ac. **SHAPE:** Roughly triangular, 870 ft. altitude on 570 ft. base.

**SLOPES:** 11% is in 0-2% class; 20% in 2-5%; 66% in 5-10%; 3% in 10-15%. Aspect NE.

**SOILS:** Unconsolidated coastal plain deposits. 1 Chillum loam 37%; 2 Sassafras loam 29%; 3 Hyatts-ville loam & silt loam 25%; 4 Sassafras sandy loam 9%. Topsoil - all weak structure; 1, 11 in. av.; 2, 9 in. av.; 3, 27 in. av.; 4, 24 in. av.; 1, 2 & 3 moderate permeability; 4, moderately rapid. Subsoil - all moderate medium subangular blocky structure; all moderate permeability. Permeability and av. depth to substratum - 1, moderately slow at 40 in.; 2, rapid at 23 in.; 3, moderate at 48+ in.; 4, rapid at 35 in. Internal drainage - 1, 2, 3 & 4 medium.

**EROSION:** 1 - 7%; 2 - 63%; 3 - 30%.

**LAND CAPABILITY:** I - 11%; II - 20%; III - 66%; IV - 3%.

**SURFACE DRAINAGE:** Excellent - principal waterway (for 6.11 acres) 990 ft. average slope 2.5%; area is lower portion of a 17 acre natural watershed (W-3 is another adjacent portion) defined by a diversion terrace halfway up the slope; overland flow to NE boundary where earth dikes divert it to gaging station. Weir flow rates corrected for pondage back of weir.

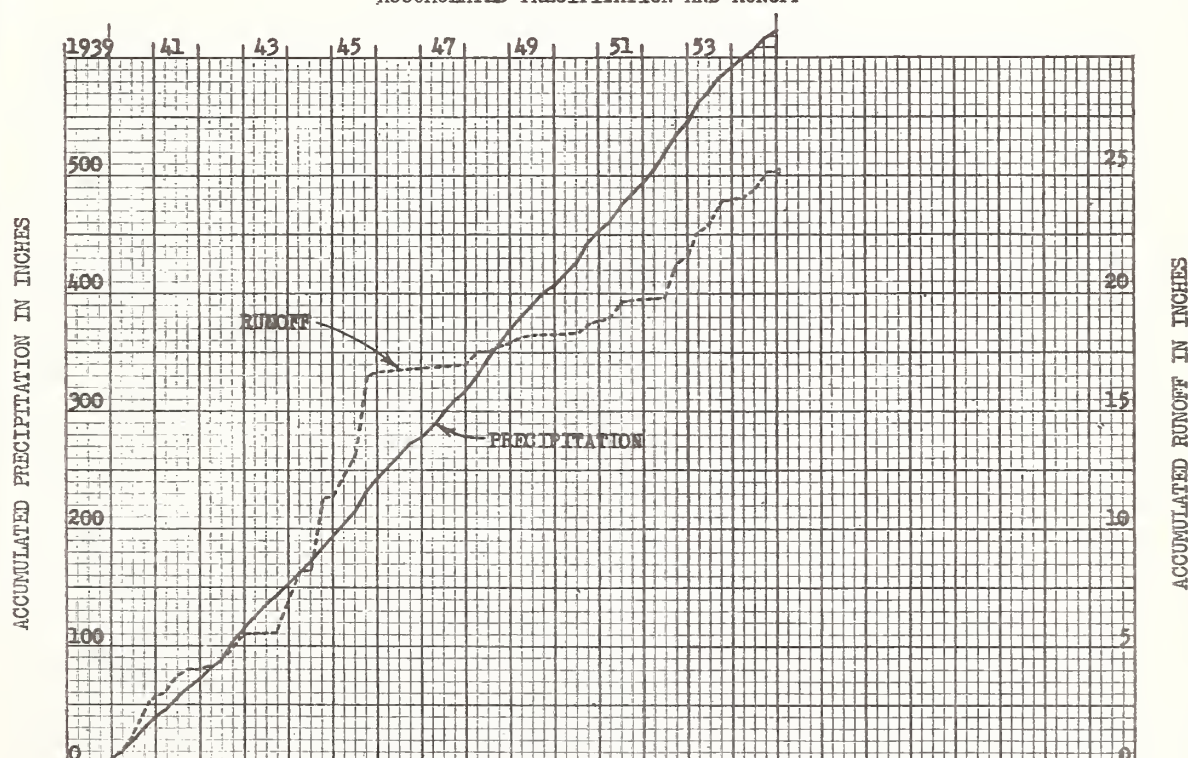
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 16" broad-crested concrete V-notch weir with 3:1 crest slope; 6 hr. chart; precipitation - recording gage on dividing dike in common with W-3, 12 hr. chart.

**WATERSHED CONDITIONS:** Runoff from about 2.8 acres at the top of the northeastward slope had been diverted in 1938 by a 940 ft. terrace into a gully north of this experimental area. The 8.01 acre area remaining had been cultivated for many years, but was in pasture and grazed by horses when measurements were started in 1939. It was left in common pasture for the first 18 months of record (as was the adjacent W-3). In April 1941, it was further reduced in size to 6.11 acres, by constructing a second terrace below the first draining to the same gully, then plowed and drilled to soy beans which were disked in and a winter cover of rye established. In 1942, a crop of sweet corn was planted on the contour with rye winter cover. In 1943-4 lima beans in 42" rows were grown up and down the slope with winter rye. In 1944, the area was reduced to 5.03 acres and planted to corn, peas and grain in 1945. From 1946 to 1954, strawberries and raspberries were grown on 40 to 60% of the area with the rest in grass. Truck yields ranged from excellent in wet summers to poor in dry years.

**GENERALLY REPRESENTS:** Sloping cultivated Northern Coastal Plain areas of moderately slow to rapid permeabilities, medium internal drainage, excellent surface drainage and moderate erosion in eastern Maryland, Delaware and southern New Jersey.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Maryland Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches) College Park, Maryland Watershed W-4

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q										1.40 .04	1.03 .06	2.16 .04	4.59 .14
1940 P Q	1.46 .13	2.75 .22	3.21 .10	5.96 .60	3.12 .11	.68 0	3.47 .13	5.17 .89	1.43 .03	2.13 .01	5.54 .51	2.65 .07	37.57 2.80
1941 P Q	3.01 .08	.87 T	1.74 .01	2.65 .04*	1.64 0	6.08 .71	4.75 .07	3.96 .20	.47 0	1.19 0	1.06 0	3.16 .03	30.58 1.14
1942 P Q	2.00 0	2.03 .01	5.91 .06	.61 .01	3.74 .14	2.96 .01	3.52 T	9.17 .63	2.31 .01	8.83 .49	1.96 0	3.73 .03	46.77 1.39
1943 P Q	2.40 0	1.79 .01	3.84 .02	2.97 .02	4.56 .03	3.16 .02	.96 0	1.53 .07	2.69 .01	4.21 .10	4.96 1.04	1.52 .21	34.59 1.53
1944 P Q	3.11 1.02	2.07 0	5.11 .09	3.34 .02	1.71 0	1.78 .11	1.52 0	5.96 1.35	7.06 1.71**	3.18 .02	3.52 .04	3.15 .04	41.51 4.40
1945 P Q	2.94 .65	2.88 .18	1.20 0	3.04 0	4.81 .08	5.35 .83	9.08 2.77	3.19 .62	5.07 .02	1.31 0	4.67 .03	5.67 .11	49.21 5.29
1946 P Q	1.60 0	2.86 .01	2.10 0	1.50 0	6.19 .01	3.23 .01	4.87 .09	2.85 0	3.06 T	2.56 0	1.39 0	2.00 T	34.21 .12
1947 P Q	3.96 .02	1.13 0	1.22 .01	3.69 .01	5.08 .04	5.07 .05	4.08 0	2.41 0	4.69 .01	1.48 0	6.33 .09	1.35 0	40.49 .23
1948 P Q	4.90 .10	1.55 .44	4.22 .03	2.45 0	7.56 .05	6.08 .05	3.04 0	7.73 .11	2.55 0	3.13 T	6.18 .09	1.29 .08	50.68 .95
1949 P Q	5.19 .04	2.95 .02	3.10 .05	1.90 .01	4.47 .03	2.83 0	3.47 .01	4.39 .03	3.29 0	3.12 .01	1.23 0	1.96 0	37.90 .20
1950 P Q	2.08 T	3.27 .05	3.77 .04	1.41 0	4.73 .04	4.14 .02	4.77 .15	4.39 .11	6.51 .07	3.00 0	3.56 .18	3.24 .07	44.87 .73
1951 P Q	2.41 0	2.70 .03	2.76 .01	4.03 .03	2.09 0	10.66 .68	1.73 0	.96 0	2.39 0	1.76 0	5.13 0	4.42 .03	41.04 .78
1952 P Q	4.51 0	1.94 .01	4.29 .04	7.90 .07	6.50 .04	3.28 0	2.90 .01	5.62 .22	5.25 1.15	.72 0	7.49 .37	3.60 .02	54.00 1.93
1953 P Q	3.53 .05	2.48 .01	7.23 .91	4.78 .08	6.96 .33	1.95 0	2.29 0	3.08 .62	4.46 .30	2.56 0	2.10 0	3.42 .08	44.84 2.38
1954 P Q	2.14 0	.88 0	3.69 0	3.49 .01	2.63 0	2.95 .35	2.35 .26	6.02 .47	1.61 0	4.10 0	2.18 0	3.07 0	35.11 1.09
1955 P Q P Q P Q	.28 0												
# Av. P # Av. Q	3.02 .14	2.14 .07	3.56 .09	3.31 .06	4.39 .06	4.01 .19	3.52 .23	4.43 .35	3.52 .22	2.89 .04	3.82 .16	2.95 .05	41.56 1.66
Normal P	3.30	2.89	3.58	3.50	4.03	3.91	4.01	4.33	3.53	2.86	2.73	3.05	41.72

Notes: # Does not include part year amounts for 1939 and 1955. Normal P based on 66 yr. record (1889-1954) at College Park, Md. Months of Jan. to April and Oct. to Dec. may include snow and snow melt. \* Area decreased from 8.01 ac. to 6.11 ac. on 4-25-41. \*\* Area decreased from 6.11 ac. to 5.03 ac. on 9-27-44. Quality of records: P, excellent; Q, excellent.



LOCATION: Montgomery Co. Md.; 5 mi. N. of College Park; Little Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

AREA: 4.07 ac.

SHAPE: Long "S", 200 to 120 ft. wide by 1,000 ft. long.

SLOPES: 31% is in 2-5% class; 48% in 5-10%; 21% in 10-15%. Aspect E-NE.

SOILS: Unconsolidated coastal plain deposits. Chillum loam 40%; Chillum gravelly loam 60%. Topsoil - weak structure, av. 9 in.; moderate permeability. Subsoil - moderate medium subangular blocky structure; moderate permeability. Average depth to impeding substratum - 28 in.; permeability moderately slow. Internal drainage - medium.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 31%; III - 48%; IV - 21%.

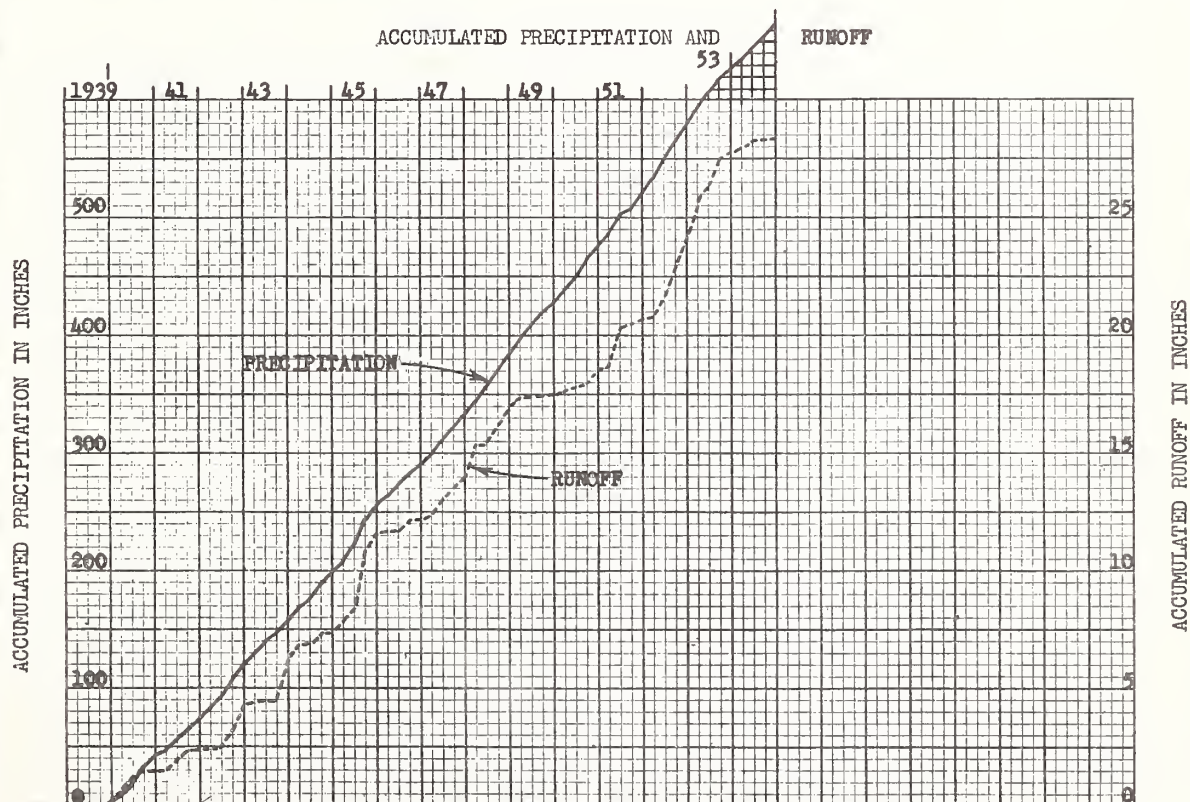
SURFACE DRAINAGE: Excellent - principal waterway vegetated diversion terrace 1,000 ft. plus 150 ft. to remote point; channel slopes: 0.6% for 200 ft., then 0.4% for 800 ft. Parabolic channel 21 to 15 ft. wide, 1.2 to 0.7 ft. deep, with 15 ft. grass filter strip above. Flow modified by channel storage.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - galvanized metal flume, Type H, 3 ft. deep, 6 hr. chart to 1950, then 24 hr. chart; precipitation - recording gage 500 ft. NE on dividing dike between W-1 & W-2, 12 hr. chart.

WATERSHED CONDITIONS: Prior to 1938 - farmed as part of cultivated field, usually in row crops, grain and hay, not on contour; 1000 ft. diversion terrace constructed in 1938; 1939-46 - contour tillage in 3 fields in corn or sorghum, winter grain and hay; 1947-54 - alternate odd years all in corn planted on 8-inch ridge rows on 1% grade draining 500 ft. from middle to each end of terrace interval, even years planted to annual lespedeza with ridges leveled. Organic matter in topsoil averaged .57% in 1949 and 51 tests. Crop yields were excellent to good.

GENERALLY REPRESENTS: Sloping cultivated Northern Coastal Plain areas of moderate to moderately slow permeabilities, medium internal drainage, excellent surface drainage and moderate erosion in eastern Maryland, Delaware and southern New Jersey.



Cooperative Research Project of USDA and Maryland Agricultural Experiment Station.

Notes: \* Does not include the part year amounts for 1939. Normal P based on 66 yr. record (1889-1954) at College Park, Md. Months of Jan. to April and Oct. to Dec. may include snow and snow melt. Quality of records: P, good to excellent; Q, excellent.



**LOCATION:** Montgomery Co., Md.; 5 mi. N. of College Park; Little Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

**AREA:** 3.53 ac.

**SHAPE:** Roughly rectangular, 180 to 250 ft. wide by 770 ft. long.

**SLOPES:** 16% is in 2-5% class; 80% in 5-10%; 4% in 10-15%. Aspect NE.

**SOILS:** Unconsolidated coastal plain deposits. 1 Sassafras sandy loam 48%; 2 Chillum loam 32%; 3 Beltsville silt loam 14%; 4 Hyattsville silt loam 6%. Topsoil - 1, 2, 3 & 4 weak structure; 1, 10 in. av.; 2, 9 in. av.; 3, 6 in. av.; 4, 20 in. av.; 1 moderately rapid permeability; 2, 3 & 4 moderate. Subsoil - 1, 2, 3 & 4 moderate medium subangular blocky structure; permeability 1, 2 & 4 moderate, 3 moderately slow. Permeability and av. depth to substratum - 1, rapid at 30 in.; 2, moderately slow at 28 in.; 3, slow at 18 in.; 4, moderate at 22 in. Internal drainage 1, 2 & 4 medium; 3 slow.

**EROSION:** 2 - 93%; 3 - 7%.

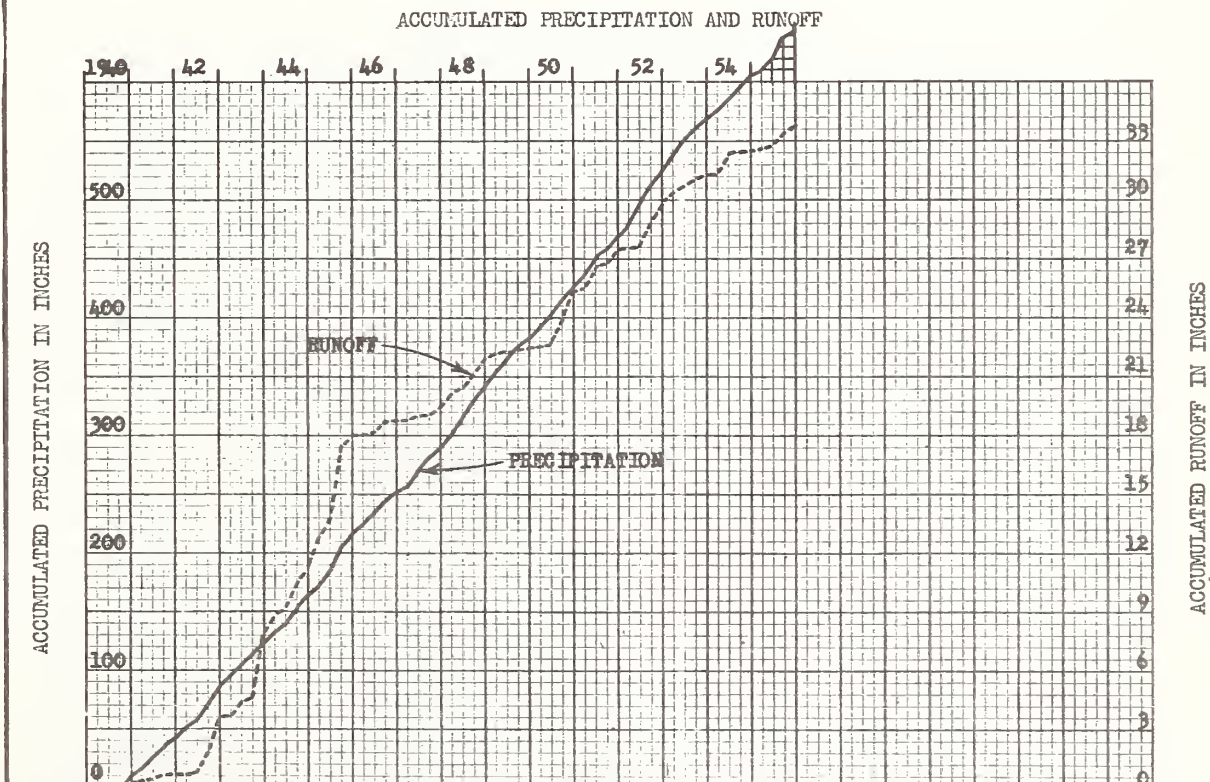
**LAND CAPABILITY:** II - 16%; III - 80%; IV - 4%.

**SURFACE DRAINAGE:** Excellent - principal waterway 730 ft. average slope 4.8%; area is the lower, steeper portion of a natural watershed with higher flat land diverted by intercepting terrace; overland flow over irregular topography to NE boundary where earth dikes divert it to flume; negligible pondage back | of flume.

**INSTRUMENTATION:** Runoff - galvanized metal flume, Type H, 3 ft. deep; 6 hr. chart to 1950, then 24 hr. chart; precipitation - recording gage on dividing dike between W-6 and adjacent W-7, 12 hr. chart.

**WATERSHED CONDITIONS:** Prior to 1940 area had been cropped for many years by off contour tillage until lower portion was abandoned due to active gullying. In 1940, trees, brush and vines were removed from this area, the gully filled in and a dividing dike built in its place to form 2 adjacent pastures, W-7 lying to the north. Pasture seeded in summer of 1940 to bluegrass-white clover mixture. From 1940 to 1955 area was subjected to continual heavy grazing by cattle, with program of ordinary fertilization and liming. Average herbage yields determined during 4 summers by mowing growth under 4 x 4 ft. cages at 5 representative locations: 1942, 0.71 tons per acre, 92 days; 1944, 0.28 T/A, 98 days; 1945, 1.6 T/A, 125 days; 1946, 1.07 T/A, 110 days. Soil loss July - Dec. 1951, 46 pounds. Due to inadequate culvert, part of flow from 4 acres of plot land overtopped boundary terrace in 1951, 52, 53, 54 and 55, which increased the flows registered at the flume.

**GENERALLY REPRESENTS:** Sloping permanent pasture land in Northern Coastal Plain areas of moderate to rapid permeabilities, slow to medium internal drainage, excellent surface drainage and moderate erosion in eastern Maryland, Delaware and southern New Jersey.



Cooperative Research Project of USDA and Maryland Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches) College Park, Maryland Watershed W-6

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940	P Q									1.49 .02	2.16 T	5.57 .24	2.72 .04	11.94 .30
1941	P Q	3.10 .06	.92 T	1.70 .01	2.78 .04	1.74 T	5.75 .09	4.61 .01	4.26 .18	.40 0	1.21 0	1.07 0	3.03 .03	30.57 .42
1942	P Q	2.16 0	1.98 0	5.57 .03	.62 .02	3.83 .02	2.98 .04	3.49 .01	8.77 1.07	2.31 .05	8.87 1.49	1.92 .01	3.46 .14	45.96 2.88
1943	P Q	2.47 0	1.92 .02	4.08 .07	3.14 .12	4.70 .19	3.16 .36	1.16 0	1.67 .24	2.60 .02	4.32 .69	4.94 1.97	1.52 .56	35.68 4.24
1944	P Q	2.97 1.06	2.18 .01	5.09 .06	3.45 .05	1.69 .03	1.76 .05	1.41 0	5.73 .82	6.85 .75	3.19 .14	3.53 .36	3.12 .09	40.97 3.42
1945	P Q	2.99 1.45	2.89 .07	1.12 .01	2.99 .03	4.69 .28	5.41 .80	13.09 2.75	2.84 .45	4.60 .16	1.23 T	4.65 .32	5.39 .49	51.89 6.81
1946	P Q	1.65 T	2.74 .01	1.97 T	1.35 0	5.89 .02	3.49 .07	5.07 .54	2.71 .03	3.05 .04	2.32 T	1.32 0	2.00 .01	33.56 .72
1947	P Q	3.80 .01	1.09 T	1.16 .03	3.61 .01	4.86 .09	4.96 .17	4.27 .05	2.03 T	4.32 .03	1.30 .02	5.72 .33	1.37 T	38.49 .74
1948	P Q	4.77 .21	1.55 .55	4.55 .02	2.31 T	6.62 .03	5.35 .16	3.18 .01	7.48 .67	2.64 .05	3.10 .02	6.23 .66	5.05 .17	52.83 2.55
1949	P Q	5.26 .02	3.43 .06	3.23 .05	2.25 .01	4.29 .12	2.91 .01	3.56 .02	4.45 .09	3.40 .01	3.18 .02	1.20 T	2.19 T	39.35 .41
1950	P Q	2.00 T	3.26 .01	4.00 .07	1.42 T	5.23 .14	4.09 .02	4.20 .19	4.58 .60	6.62 .28	3.16 .19	3.58 .87	3.17 .49	45.31 2.86
1951	P Q	2.63 .02	2.71 .10	2.99 .01	4.04 .12	2.11 T	10.51 1.04*	1.88 .02	.72 T	2.69 .07	1.76 T	5.08 .08	4.51 .79	41.63 2.25
1952	P Q	4.58 T	1.91 0	4.31 T	7.68 .03	6.93 .05	3.32 T	3.48 .04	6.05 .12	5.00 1.04*	.55 T	7.34 .80	3.25 .01	54.40 2.09
1953	P Q	3.73 .04	2.49 T	7.57 .75	4.81 .01	7.24 .24	1.84 T	2.31 T	3.17 .40*	4.19 .05	2.67 .01	1.07 T	3.54 .05	44.63 1.55
1954	P Q	2.14 T	.88 0	3.76 T	3.26 .01	2.34 T	3.21 1.07*	2.35 .11	5.93 .04	1.48 T	3.91 .01	2.08 T	3.11 0	34.45 1.24
1955	P Q	.28 0	3.28 .16	3.90 T	3.04 T	1.91 T	4.99 .16*	.37 0	14.59 .73*	1.10 T	5.28 .20	1.68 T	.22 0	40.64 1.25
	P Q													
	P Q													
	P Q													
** Av. P		2.97	2.21	3.67	3.12	4.27	4.25	3.63	5.00	3.42	3.07	3.43	2.99	42.03
** Av. Q		.19	.07	.07	.03	.08	.27	.25	.36	.17	.19	.36	.19	2.23
Normal P		3.30	2.89	3.58	3.50	4.03	3.91	4.01	4.33	3.53	2.86	2.73	3.05	41.72

Notes: \*\* Does not include part year amounts for 1940. Normal P based on 66 year record (1889-1954) at College Park, Maryland. Months of Jan. to Apr. and Oct. to Dec. may include snow and snow melt. Quality of records: P, excellent; Q, excellent, except as follows: months marked (\*) part of flow from about 4 acres of plot land came over boundary ridge, making accuracy fair to poor.



**LOCATION:** Montgomery Co., Md; 5 mi. N. of College Park; Little Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

**AREA:** 4.11, 3.52 ac.

**SHAPE:** Triangle, 310 ft. base and altitude, plus rectangle, 410 by

**SLOPES:** 37% is in 2-5% class; 49% in 5-10%; 14% in 10-15%. Aspect SE.

**SOILS:** Unconsolidated coastal plain deposits. 1 Beltsville silt loam 72%; 2 Hyattsville silt loam 16%; 3 Leonardtown silt loam 6%; 4 Croom gravelly loam 6%. Topsoil - 1, 2, 3 & 4 weak structure; 1, 8 in. av.; 2, 28 in. av.; 3, 6 in. av.; 4, 8 in. av.; 1, 2, 3 & 4 moderate permeability. Subsoil - 1 & 2 moderate medium subangular blocky structure; 3 moderate medium platy structure; 4 no subsoil; permeability, 1 moderately slow, 2 moderate, 3 slow. Permeability and av. depth to substratum - 1, slow at 19 in.; 2, moderate at 48+ in.; 3, very slow at 15 in.; 4, moderate at 8 in. Internal drainage - 1 slow; 2 & 4 medium; 3 very slow.

**LAND CAPABILITY:** II - 31%; III - 55%; IV - 14%.

**SURFACE DRAINAGE:** Excellent, except 1943-51, when pasture contour furrows with occasional cross-dams were operating, which pocketed about 0.25 in. of runoff. Principal waterway 790 ft., average slope 4.4%; lower, steeper portion of a natural watershed with higher flat land diverted by a diversion terrace; overland flow over irregular topography to SE boundary where earth dikes direct the flow to

**CHARACTER OF FLOW:** Ephemeral, continuous.

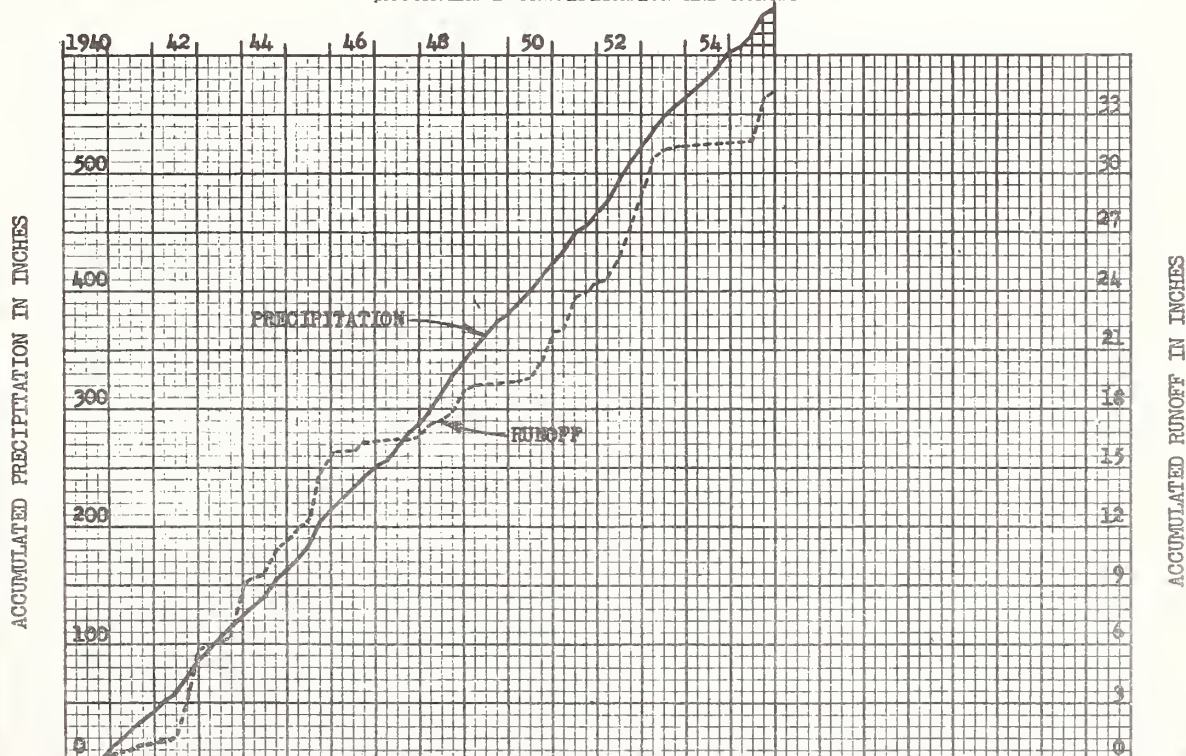
flume; negligible pondage back of flume.

**INSTRUMENTATION:** Runoff - galvanized metal flume, Type H, 3 ft. deep; 6 hr. chart to 1950, then 24 hr. chart; precipitation - recording gage on dividing dike between W-7 and adjacent W-6, 12 hr. chart.

**WATERSHED CONDITIONS:** Prior to 1940 area had been cropped for many years by off contour tillage until lower third was abandoned due to gullying. In 1940, trees, brush and vines were removed from this area, the gully filled in and a dividing dike built in its place to form two adjacent pastures. Drainage area of 4.11 acres was reduced to 3.52 acres on Aug. 29, 1941 (to equal W-6) by building dike across NE corner. Pasture seeded in summer of 1940 to bluegrass-white clover mixture. On May 3-4, 1943, 14 level pasture contour furrows were built by 2 trips of 16 in. plow, spacing 20 ft. apart on steepest slope, av. cross-section .61 sq. ft. From 1940 to Mar. 7, 1951, pasture was subjected to continuous heavy grazing by cattle with program of ordinary fertilization and liming. Average herbage yields were determined by mowing growth under 4 x 4 ft. cages at 5 representative locations in 1942, av. yield .69 tons per acre. After furrows were established, 5 pairs of cages one above and one below the furrows showed average yields of .32 T/A in 98 days, 1944; 1.98 T/A in 125 days, 1945 and 1.5 T/A in 110 days, 1946. In Mar. 1951 furrows were plowed shut and pasture renovated in July & Aug. by disking and reseeding to orchard grass and tall clovers. Soil loss during renovation July-Dec. 1951 was 521 lbs. from 3.52 acres. Rotation grazing 1952-55.

**GENERALLY REPRESENTS:** Sloping permanent pasture land with and without contour furrows and renovated pastures in Northern Coastal Plain areas of moderate to very slow permeabilities, medium to very slow internal drainage, excellent to poor (with contour furrows) surface drainage and moderate erosion in eastern Maryland, Delaware and southern New Jersey.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Maryland Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches) College Park, Maryland Watershed W-7

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q									1.49 .03	2.16 .01	5.57 .37	2.72 .05	11.94 .46
1941 P Q	3.10 .04	.92 T	1.70 T	2.78 .07	1.74 T	5.75 .08	4.61 .02	4.26 .26*	.40 0	1.21 0	1.07 0	3.03 .05	30.57 .52
1942 P Q	2.16 T	1.98 T	5.57 .11	.62 .26	3.83 .04	2.98 .04	3.49 .02	8.77 1.65	2.31 .05	8.87 2.41	1.92 T	3.46 .29	45.96 4.87
1943 P Q	2.47 0	1.92 .15	4.08 .03	3.14 .06	4.70 T	3.16 .11	1.16 0	1.67 .10	2.60 T	4.32 .49	4.94 1.98	1.52 .25	35.68 3.17
1944 P Q	2.97 .39	2.18 0	5.09 .18	3.45 .01	1.69 .01	1.76 .01	1.41 0	5.73 .80	6.85 .50	3.19 .01	3.53 .29	3.12 .12	40.97 2.32
1945 P Q	2.99 .63	2.89 0	1.12 T	2.99 T	4.69 .08	5.41 .34	13.09 2.06	2.84 .45	4.60 .05	1.23 0	4.65 .19	5.39 .73	51.89 4.53
1946 P Q	1.65 T	2.74 T	1.97 T	1.35 0	5.89 T	3.49 .01	5.07 .46	2.71 .01	3.05 .01	2.32 T	1.32 0	2.00 T	33.56 .49
1947 P Q	3.80 .01	1.09 T	1.16 .01	3.61 T	4.86 .04	4.96 .05	4.27 .01	2.03 T	4.32 T	1.30 T	5.72 .25	1.37 T	38.49 .37
1948 P Q	4.77 .14	1.55 .41	4.55 .06	2.31 T	6.62 .01	5.35 .09	3.18 T	7.48 .54	2.64 .01	3.10 T	6.23 .64	5.05 .32	52.83 2.22
1949 P Q	5.26 .21	3.43 .04	3.23 .08	2.25 T	4.29 .05	2.91 T	3.56 T	4.45 .03	3.40 T	3.18 T	1.20 T	2.19 T	39.35 .41
1950 P Q	2.00 0	3.26 .03	4.00 .24	1.42 T	5.23 .08	4.09 .01	4.20 .09	4.58 .52	6.62 .27	3.16 .09	3.58 .87	3.17 .51	45.31 2.71
1951 P Q	2.63 T	2.71 .08	2.99 .01	4.04 .07	2.11 T	10.51 1.55	1.88 T	.72 T	2.69 .19	1.76 T	5.08 .15	4.51 .48	41.63 2.53
1952 P Q	4.58 .03	1.91 .08	4.31 .07	7.68 .83	6.93 .23	3.32 T	3.48 .12	6.05 .18	5.00 1.34	.55 0	7.34 1.30	3.23 .06	54.40 4.24
1953 P Q	3.73 .22	2.49 T	7.57 1.75	4.81 .03	7.24 .40	1.84 T	2.31 T	3.17 .13	4.19 .01	2.67 .01	1.07 .01	3.54 .04	44.63 2.60
1954 P Q	2.14 0	.88 T	3.76 T	3.26 .01	2.34 T	3.21 .18	2.35 T	5.93 T	1.48 T	3.91 T	2.08 .01	3.11 0	34.45 .20
1955 P Q	.28 0	3.28 .01	3.90 T	3.04 T	1.91 T	4.99 .07	.37 0	14.59 2.17	1.10 T	5.28 .40	1.68 T	.22 0	40.64 2.65
P Q													
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	2.97 .11	2.21 .05	3.67 .17	3.12 .09	4.27 .06	4.25 .17	3.63 .19	5.00 .46	3.42 .16	3.07 .23	3.43 .38	2.99 .19	42.03 2.26
Normal P	3.30	2.89	3.58	3.50	4.03	3.91	4.01	4.33	3.53	2.86	2.73	3.05	41.72

Notes: \*\* Does not include part year amounts for 1940. Normal P based on 66 year record (1889-1954) at College Park, Maryland. Months of Jan. to Apr. and Oct. to Dec. may include snow and snow melt. Quality of records: P, excellent; Q, excellent.

\* Area decreased from 4.11 ac. to 3.52 ac. Aug. 29, 1941 after this runoff occurred.



**LOCATION:** Montgomery Co., Md.; 5 mi. N. of College Park; Little Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

**AREA:** 2.43 ac.

**SHAPE:** Roughly elliptical, 240 ft. by 550 ft.

**SLOPES:** 19% is in 2-5% class; 72% in 5-10%; 9% in 10-15%. Aspect SE.

**SOILS:** Unconsolidated coastal plain deposits. Beltsville silt loam 100%. Topsoil - weak structure, 10 in. av. depth; moderate permeability. Subsoil - moderate medium subangular blocky structure; permeability, moderately slow. Permeability and av. depth to impeding substratum - slow at 22 in. Internal drainage - slow.

**EROSION:** 1 - 91%; 2 - 9%.

**LAND CAPABILITY:** II - 19%; III - 72%; IV - 9%.

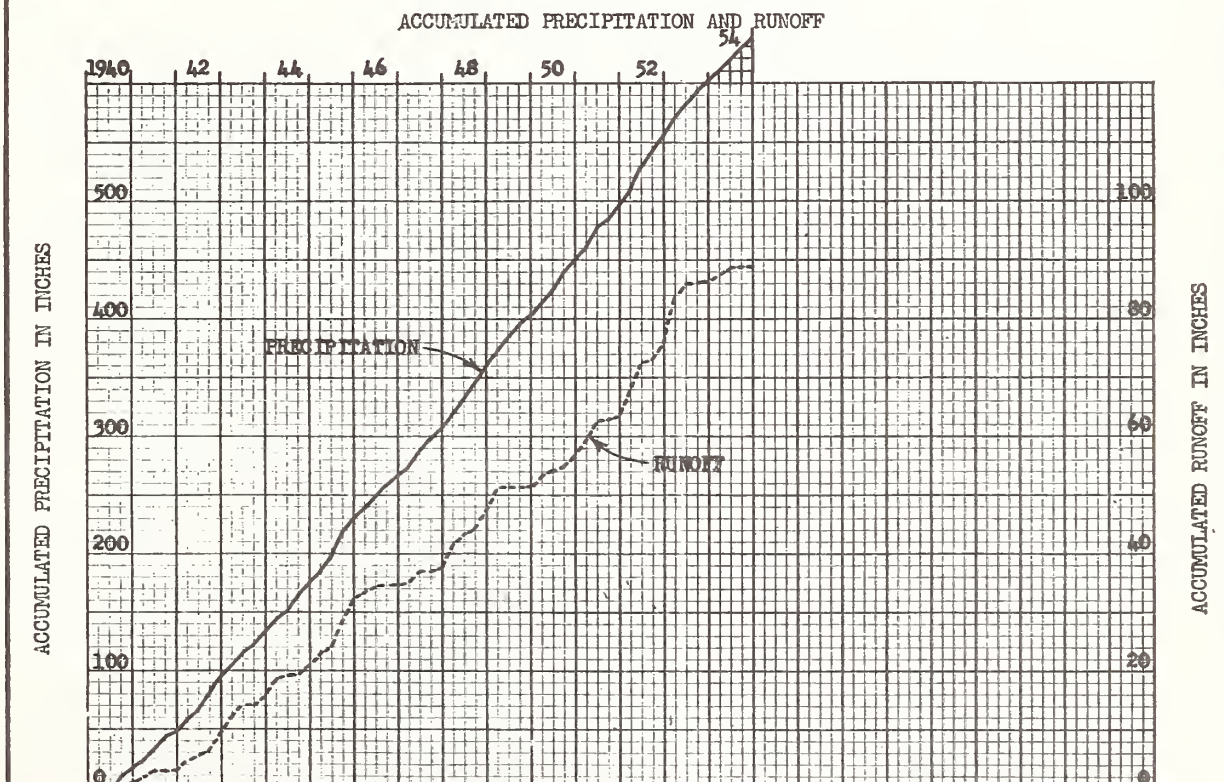
**SURFACE DRAINAGE:** Excellent - principal waterway 370 ft. long, average slope 5.7%, 220 ft. beyond to remote point; area is natural watershed in second growth woodland; subsurface flow from 85% of area, becomes channelized 250 ft. above station, short earth dikes at station confine it to flume; negligible pondage back of flume.

**CHARACTER OF FLOW:** Ephemeral, continuous. In winter, spring or periods of protracted precipitation, this watershed has had continuous flows lasting up to 15 days.

**INSTRUMENTATION:** Runoff - galvanized metal flume, Type H, 2.5 ft. deep; 6 hr. chart to 1946, then 24 hr. chart; precipitation - recording gage 1300 ft. NW on dividing dike between W-1 & 2; check on precipitation by standard gage in fire guard clearing near flume.

**WATERSHED CONDITIONS:** The merchantable timber was logged off the area 15 to 25 years before runoff measurements were started in Aug. 1940. After this cutting, an understory of pine and hardwoods grew under the few unmerchantable or undersized trees that had been left. There is evidence of past ground fires, but probably no grazing occurred. In several small areas, the present growth runs largely to laurel and blueberries, with some spots bare of litter, but moss-covered. On 75% of the area there is fair to excellent litter on the ground. There was no change in the area during the period of record, except the slow, natural growth of the stand. Data on 7 years of this natural growth between 1948 and 1955 are available from 51% counts of trees above 4 in. DBH and 5.1% tallies of all plants or trees 1 to 4 in. DBH.

**GENERALLY REPRESENTS:** Sloping, ungrazed, cutover woodlands with second growth of hardwoods and pine in Northern Coastal Plain areas of moderate to slow permeabilities, slow internal drainage, good subsurface and excellent surface drainage, with none to slight erosion in eastern Maryland, Delaware and southern New Jersey.



Cooperative Research Project of USDA and Maryland Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches) College Park, Md., Watershed W-8

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q								5.48 .02	1.52 T	2.18 0	5.60 .49	2.64 .38	17.42 .89
1941 P Q	3.28 .50	1.03 .10	2.00 .47	2.92 .98	1.76 0	5.50 T	4.41 T	4.35 T	.39 0	1.21 0	1.08 0	3.27 T	31.20 2.05
1942 P Q	2.17 0	2.09 .16	6.39 1.48	.63 .97	3.91 .21	2.90 0	3.73 0	8.96 .53	2.29 0	8.96 1.84	1.96 .01	3.73 1.19	47.72 6.39
1943 P Q	2.62 .02	2.03 1.50	4.34 1.39	3.25 1.12	4.79 .92	3.06 0	1.24 0	1.55 T	2.69 0	4.52 T	4.94 1.33	1.58 .08	36.61 6.36
1944 P Q	3.24 1.05	2.38 .09	5.54 1.99	3.42 .73	1.88 .01	1.85 0	1.60 0	5.74 .11	7.09 .01	3.31 .01	3.63 .64	3.46 .53	43.14 5.17
1945 P Q	3.32 1.22	3.20 .71	1.31 .13	3.15 .37	4.85 .44	5.70 .46	13.36 3.57	3.28 1.07	4.99 .06	1.26 0	4.73 .83	5.95 2.79	55.10 11.65
1946 P Q	1.80 .20	3.16 .84	2.17 .25	1.42 .01	6.18 .45	3.81 .29	5.00 .03	2.79 0	2.94 0	2.51 0	1.35 0	2.30 T	35.43 2.07
1947 P Q	4.17 .39	1.60 0	1.58 .18	3.74 .23	4.97 1.25	5.18 .56	4.66 0	2.21 0	4.73 0	1.40 0	6.13 .64	1.56 .06	41.93 3.31
1948 P Q	4.83 1.63	1.80 .73	4.54 1.60	2.38 .37	6.56 1.27	5.20 .10	3.34 0	7.63 .55	2.62 T	3.23 0	6.39 1.23	5.41 2.16	53.93 9.64
1949 P Q	5.75 1.74	3.86 1.02	3.51 .87	2.51 .22	4.70 .23	3.08 0	3.81 0	4.49 0	3.50 0	3.25 0	1.32 0	2.55 0	42.33 4.08
1950 P Q	2.28 .02	3.53 .68	4.40 1.20	1.53 0	5.73 1.14	4.23 .03	4.33 T	4.68 0	6.80 .32	3.43 .18	4.02 1.17	3.72 1.03	48.68 5.77
1951 P Q	2.89 .20	2.99 1.15	3.27 .69	4.19 .82	2.08 0	11.20 2.78	2.20 0	.76 0	2.90 0	1.85 0	5.41 0	4.90 .66	44.64 6.30
1952 P Q	4.92 1.42	2.01 .65	4.75 1.69	8.27 3.80	7.39 1.34	3.65 .04	3.38 0	6.46 T	5.11 .57	.76 0	7.65 2.03	3.84 .66	58.19 12.20
1953 P Q	3.97 1.79	2.76 .83	7.88 4.27	5.15 1.39	7.77 1.67	2.09 .24	2.48 0	3.59 T	4.22 T	2.72 0	2.17 0	3.86 .44	48.66 10.63
1954 P Q	2.51 .37	1.07 .02	4.10 .75	3.44 .90	2.43 .09	3.46 T	2.36 T	6.22 T	1.63 0	3.93 0	2.34 0	3.25 .07	36.74 2.20
1955 P Q  P Q  P Q  P Q	.29 0												
* Av. P * Av. Q	3.41 .75	2.39 .61	3.99 1.21	3.29 .85	4.64 .64	4.35 .32	3.99 .26	4.48 .16	3.71 .07	3.02 .15	3.79 .56	3.53 .69	44.59 6.27
Normal P	3.30	2.89	3.58	3.50	4.03	3.91	4.01	4.33	3.53	2.86	2.73	3.05	41.72

Notes: \* Does not include the part year amounts for 1940 & 1955. Normal P based on 66 yr. record (1889-1954) at College Park, Md. Months of Jan. to April and Oct. to Dec. may include snow and snow melt. Quality of records: P, good to excellent; Q, excellent.

**LOCATION:** Montgomery Co., Md.; 5 mi. N. of College Park; Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

**AREA:** 12.05 ac.

**SHAPE:** Roughly oval, 1300 ft. long, 350 to 570 ft. wide.

**SLOPES:** 31% is in 2-5% class; 50% in 5-10%; 19% in 10-15%. Aspect E-SE.

**SOILS:** Unconsolidated coastal plain deposits. 1 Chillum loam and gravelly loam 63%; 2 Aura sandy loam 15%; 3 Beltsville silt loam 14%; 4 Croom gravelly sandy loam 8%. Topsoil - 1, 2, 3 & 4 weak structure; 1, 13 in. av.; 2, 10 in. av.; 3, 12 in.; 4, 8 in. av.; permeability 1 & 3 moderate, 2 moderately rapid, 4 very rapid. Subsoil - 1 & 3 moderate medium subangular blocky structure; 2 weak medium subangular blocky; 4 weak medium platy; permeability 1 & 4 moderate, 2 moderately rapid, 3 moderately slow. Permeability and av. depth to substratum - 1, moderate at 36 in.; 2, moderately rapid at 22 in.; 3, slow at 24 in.; 4, moderate at 18 in. Internal drainage; 1, 2 & 4 medium; 3 slow.

**EROSION:** 1 - 97%; + - 3%.

**LAND CAPABILITY:** II - 31%; III - 50%; IV - 19%.

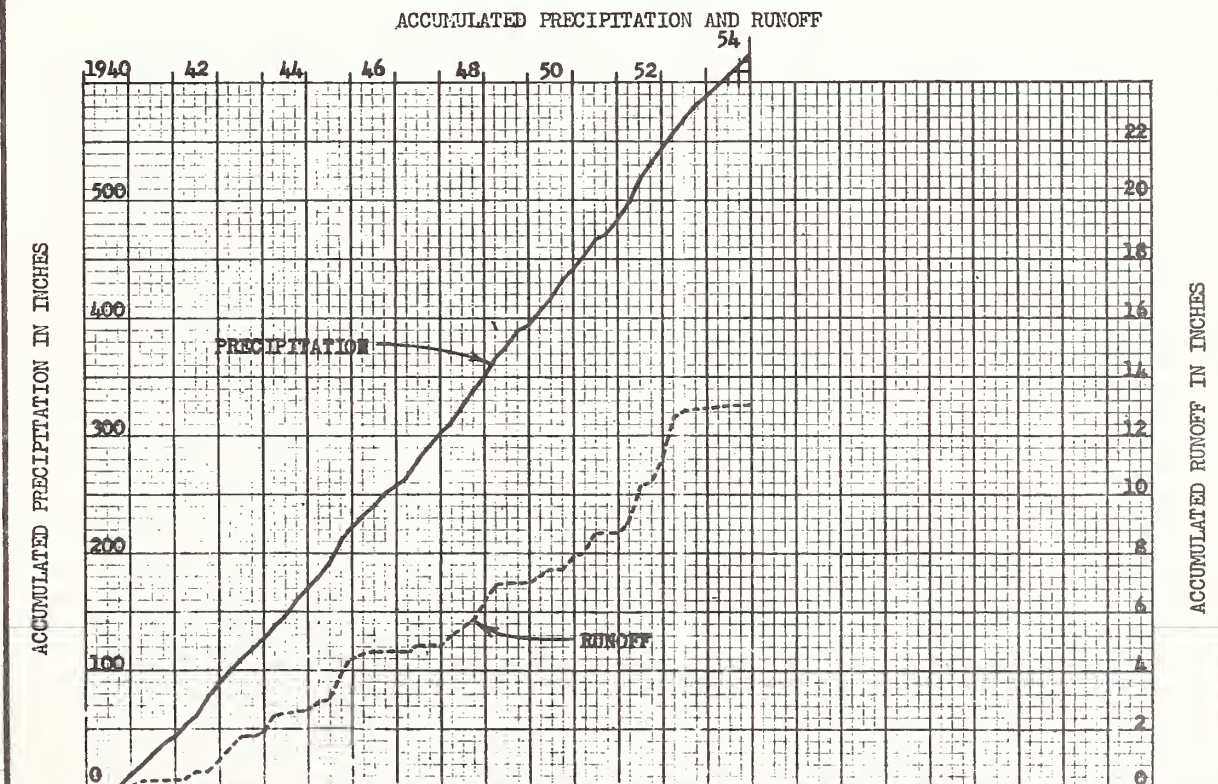
**SURFACE DRAINAGE:** Excellent, except in few areas (5% of total) where uprooted trees left pockets; principal waterway 1020 ft. long, average slope 5.8%; 300 ft. beyond to remote point; runoff from 95% of the natural watershed is subsurface flow into the narrow channel; short earth dikes confine flow to flume at gaging station; negligible pondage back of flume.

**CHARACTER OF FLOW:** Ephemeral, continuous. In winter, spring or periods of protracted precipitation this watershed has had continuous flows for as long as 23 days.

**INSTRUMENTATION:** Runoff - galvanized metal flume, Type H, 3 ft. deep; 24 hr. chart; precipitation - recording gage in clearing 120 ft. NE of watershed line and 450 ft. from center of drainage area, 12 hr. chart.

**WATERSHED CONDITIONS:** When measurements were begun in 1940, the drainage area was in a mature stand of mixed hardwoods with some scrub pine. It had not been touched by ax or fire for many years probably because of the inaccessible location and distance from roads and farm buildings. It had a full canopy overhead with practically no undergrowth, and an excellent litter on the forest floor. In 1948-49 a heavy cut of hardwood and pine timber was made and the litter disturbed somewhat by trucks on 10% of the area. This released the growth of blueberries, laurel, seedlings and smaller trees, so that there was a thick understory growth by 1954. Data on timber removed in 1948-49 and on the 7 years of second growth are available from 48% counts made in 1948 and 1955 of all trees above 4 in. DBH and 4.8% tallies of 1 to 4 in. plants or trees.

**GENERALLY REPRESENTS:** Sloping, ungrazed, mature and cutover woodlands in Northern Coastal Plain areas of very rapid to slow permeabilities, medium to slow internal drainage, excellent subsurface and good surface drainage, with none to slight erosion in eastern Maryland, Delaware and southern New Jersey.



Cooperative Research Project of USDA and Maryland Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches) College Park, Maryland Watershed W-9

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q									1.08 T	2.13 T	5.53 .01	2.69 .01	11.43 .02
1941 P Q	3.18 .02	.94 T	1.95 .03	2.82 .17	1.87 0	5.75 T	4.96 T	4.22 T	.41 0	1.25 0	1.03 0	3.23 T	31.61 .22
1942 P Q	2.25 T	2.03 T	6.19 .14	.62 .21	3.75 0	3.10 T	3.84 T	9.06 .04	2.31 0	8.90 .21	2.00 T	3.66 .19	47.71 .79
1943 P Q	2.60 T	1.90 .25	4.17 .16	3.18 .17	4.73 .12	2.95 0	1.02 0	1.58 0	2.88 0	4.42 0	5.10 .18	1.57 T	36.10 .88
1944 P Q	3.27 .20	2.26 T	5.39 .34	3.56 .05	1.70 T	1.96 0	1.52 0	5.94 T	7.24 T	3.42 T	3.62 .01	3.51 .09	43.39 .69
1945 P Q	3.22 .22	3.27 .07	1.14 .02	3.05 T	4.59 T	5.68 .05	13.02 .81	2.77 .16	4.71 T	1.35 T	4.30 .04	6.14 .53	53.24 1.90
1946 P Q	1.77 .03	3.08 .05	2.01 T	1.40 0	5.97 .01	3.19 .01	4.97 T	2.63 0	3.01 0	2.50 T	1.30 T	2.07 T	33.90 .10
1947 P Q	4.07 T	1.53 0	1.38 0	3.62 T	4.98 .18	5.13 .07	4.15 T	3.25 T	4.45 T	1.27 T	5.87 .01	1.43 T	41.13 .26
1948 P Q	5.07 .23	1.83 .03*	4.20 .13	2.38 .03	6.71 .18	5.35 .06	3.00 T	7.92 .18	2.77 T	3.27 T	6.32 .34	5.35 .38	54.17 1.56
1949 P Q	5.53 .33	3.69 .08	3.21 .11	2.25 .01	4.63 .01*	2.98 T	3.64 T	4.81 T	3.44 T	3.17 T	1.17 0	2.23 0	40.75 .54
1950 P Q	2.16 0	3.27 .07	3.76 .20	1.39 0	5.71 .22	4.00 T	4.08 T	4.42 T	7.05 .01	3.15 T	4.01 .30	3.57 .14	46.57 .94
1951 P Q	2.83 0	2.75 .08	3.02 .07	3.79 .06	2.10 0	10.48 .61	1.59 T	.77 0	2.86 T	1.77 T	5.09 T	4.98 .05	42.03 .87
1952 P Q	4.90 .14	2.03 .07	5.07 .11	7.91 1.10	7.24 .14	3.36 T	3.50 T	6.25 T	5.67 .16	.60 0	7.89 .79	3.56 .09	57.98 2.60
1953 P Q	3.75 .24	2.23 .02	7.51 1.05	4.94 .10	7.43 .08	1.79 .01	2.31 T	2.96 T	4.33 T	2.64 0	2.03 0	3.68 .02	45.60 1.52
1954 P Q	2.55 .01	.83 0	3.75 .05	3.44 .10	2.23 T	3.52 T	2.70 T	6.32 T	1.66 0	3.89 T	2.02 T	3.17 0	36.08 .16
1955 P Q  P Q  P Q  P Q	.28 0												
** Av. P ** Av. Q	3.37 .10	2.26 .05	3.77 .17	3.17 .14	4.54 .07	4.23 .06	3.88 .06	4.49 .03	3.77 .01	2.97 .02	3.70 .12	3.44 .10	43.59 .93
Normal P	3.30	2.89	3.58	3.50	4.03	3.91	4.01	4.33	3.53	2.86	2.73	3.05	41.72

Notes: \*\* Does not include part year amounts for 1940 or 1955. Normal P based on 66 year record (1889-1954) at College Park, Maryland. Months of Jan. to Apr. and Oct. to Dec. may include snow and snow melt. Quality of records: P, excellent; Q, excellent  
 \* Heavy logging from Feb. 16, 1948 to May 2, 1949.



**LOCATION:** Montgomery Co., Md.; 5 mi. N. of College Park; Little Paint Branch, Northeast Branch Anacostia River, Potomac River Basin.

**AREA:** 3.04 ac.

**SHAPE:** Fat "S", 170 to 300 ft. wide by 560 ft. long.

**SLOPES:** 20% is in 2-5% class; 46% in 5-10%; 34% in 10-15%. Aspect S.

**SOILS:** Unconsolidated coastal plain deposits. 1 Chillum gravelly loam 38%; 2 Beltsville silt loam 28%; 3 Creom gravelly loam 25%; 4 Hyattsville silt loam 9%. Topsoil - 1, 2, 3 & 4 weak structure; 1 & 2, 9 in. av.; 3, 8 in. av.; 4, 18 in. av.; all moderate permeability. Subsoil - 1, 2 & 4 moderate medium subangular blocky structure; 3 no subsoil; permeability 1 & 4 moderate, 2 moderately slow. Permeability and av. depth to substratum - 1, moderately slow at 20 in.; 2, slow at 21 in.; 3, moderate at 8 in.; 4, moderate at 45 in. Internal drainage - 1, 3 & 4 medium; 2 slow.

**EROSION:** 2 - 66%; 3 - 25%; 4 - 9%.

**LAND CAPABILITY:** II - 20%; III - 42%; IV - 38%.

**SURFACE DRAINAGE:** Excellent - principal waterway, vegetated diversion terrace 600 ft. plus 290 ft. to remote point; parabolic channel 13 to 20 ft. wide, 0.8 to 1.6 ft. deep, on 0.9% uniform channel grade. Flow modified by channel storage. Grass filter strip 15 ft. wide above channel.

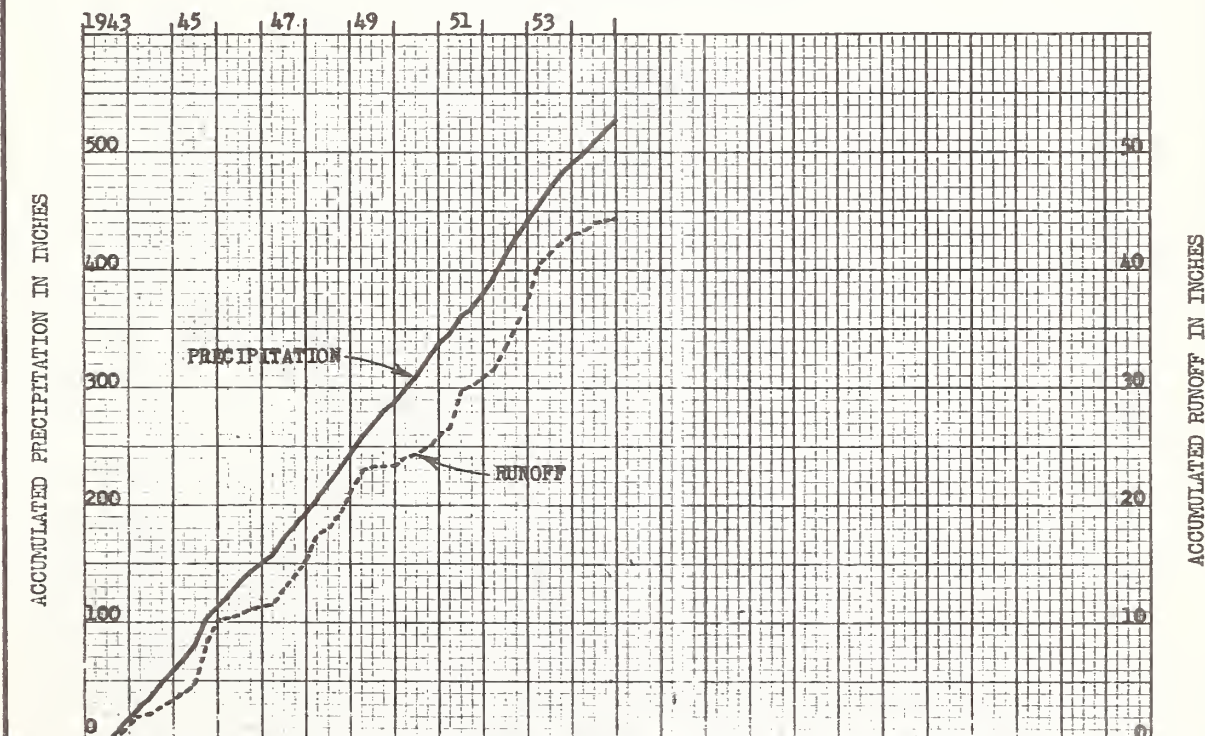
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - galvanized metal flume, Type H, 3 ft. deep, 6 hr. chart to 1950, then 24 hr. chart; precipitation - recording gage 800 ft. SE on dividing dike between W-1 & W-2, 12 hr. chart.

**WATERSHED CONDITIONS:** Prior to 1938, farmed as part of cultivated field, usually in row crops, grain and hay, not on contour; 500 ft. diversion terrace constructed in 1938; 1939-43, area was largely in grain or hay. The runoff station was installed in June 1943 and diversion terrace extended from 500 to 600 ft., bringing in the whole 3.04 acres. 1944-46, area was strip cropped on exact contour in 3 strips in rotation of sorghum, wheat and hay; 1947-54 in alternate odd years, corn was planted on 8" ridge rows parallel with upper boundary with cross dams between ridges every 20 to 25 ft. to pocket runoff; even years were planted to annual lespedeza with ridges leveled. Organic matter in topsoil averaged 0.43% in tests made in 1949 and 1951. Crop yields were good to fair.

**GENERALLY REPRESENTS:** Sloping cultivated Northern Coastal Plain areas of moderate to slow permeabilities, medium to slow internal drainage, excellent surface drainage and moderate erosion in eastern Maryland, Delaware and southern New Jersey.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Maryland Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches) College Park, Md., Watershed W-10

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1943 P							1.24	1.55	2.69	4.52	4.94	1.58	16.52
Q							0	.01	T	.18	1.38	.05	1.62
1944 P	3.24	2.38	5.54	3.42	1.88	1.85	1.60	5.74	7.09	3.31	3.63	3.46	43.14
Q	.28	0	.28	.02	T	T	0	.47	.26	.01	.21	.33	1.86
1945 P	3.32	3.20	1.31	3.15	4.85	5.70	13.36	3.28	4.99	1.26	4.73	5.95	55.10
Q	.49	.06	0	T	.24	.84	2.50	.78	.08	T	.44	1.49	6.92
1946 P	1.80	3.16	2.17	1.42	6.18	3.81	5.00	2.79	2.94	2.51	1.35	2.30	35.43
Q	T	.06	T	0	.05	.21	.65	T	T	T	0	.01	.98
1947 P	4.17	1.60	1.58	3.74	4.97	5.18	4.66	2.21	4.73	1.40	6.13	1.56	41.93
Q	.16	0	.09	.01	.23	1.15	.46	.03	.54	.04	1.40	.02	4.13
1948 P	4.83	1.80	4.54	2.38	6.56	5.20	3.34	7.63	2.62	3.23	6.39	5.41	53.93
Q	1.13	.85	.27	.02	.22	.06	T	1.23	T	.03	1.09	1.08	5.98
1949 P	5.75	3.86	3.51	2.51	4.70	3.08	3.81	4.49	3.50	3.25	1.32	2.55	42.33
Q	.90	.32	.40	.08	.18	.01	.02	.01	T	.03	0	.01	1.96
1950 P	2.28	3.53	4.40	1.53	5.73	4.23	4.33	4.68	6.80	3.43	4.02	3.72	48.68
Q	.02	.36	.41	0	.27	.01	.05	.11	.36	.05	.68	.41	2.73
1951 P	2.89	2.99	3.27	4.19	2.08	11.20	2.20	.76	2.90	1.85	5.41	4.90	44.64
Q	.02	.35	.16	.20	0	3.22	.03	0	.09	0	.13	.64	4.84
1952 P	4.92	2.01	4.75	8.27	7.39	3.65	3.38	6.46	5.11	.76	7.65	3.84	58.19
Q	.30	.18	.22	1.24	.71	.03	.20	.29	1.22	0	1.94	.23	6.56
1953 P	3.97	2.76	7.88	5.15	7.77	2.09	2.48	3.59	4.22	2.72	2.17	3.86	48.66
Q	.60	.14	2.24	.26	.71	.09	.01	.56	.26	.02	.04	.62	5.55
1954 P	2.51	1.07	4.10	3.44	2.43	3.46	2.36	6.22	1.63	3.93	2.34	3.25	36.74
Q	.16	T	.09	.17	.01	.63	.21	.07	0	.01	T	.08	1.43
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* Av. P	3.61	2.58	3.91	3.56	4.96	4.50	4.23	4.35	4.23	2.51	4.10	3.71	46.25
* Av. Q	.37	.21	.38	.18	.24	.57	.37	.32	.25	.02	.54	.45	3.90
Normal P	3.30	2.89	3.58	3.50	4.03	3.91	4.01	4.33	3.53	2.86	2.73	3.05	41.72

Notes: \* Does not include the part year amounts for 1943. Normal P based on 66 yr. record (1889-1954) at College Park, Md. The months of Jan. to April and Oct. to Dec. may include snow and snow melt. Quality of records: P, good to excellent; Q, excellent.



## HAGERSTOWN, MARYLAND Watershed W-I

**LOCATION:** Washington Co., Md.: 11.5 mi. SSE of Hagerstown; Dog Creek, Little Antietam and Antietam Creeks, Potomac River Basin.

**AREA:** 46.3 ac.

**SHAPE:** Black oak leaf, 1500 ft. wide by 2200 ft. long.

**SLOPES:** 11% is in 0-3% class; 36% in 3-8%; 37% in 8-15%; 16% in 15-25%. Aspect SW.

**SOILS:** Residual; derived from limestone. 1 Hagerstown silt loam 51%; 2 Hagerstown gravelly silt loam 30%; 3 Duffield silt loam 11%; 4 Huntington silt loam 8%. Topsoil - all weak structure; 1, 7 in. av.; 2 & 3, 6 in. av.; 4, 22 in. av.; all moderately rapid permeability. Subsoil - 1 & 2, strong medium subangular blocky structure; 3, weak medium subangular blocky; 4, moderate fine to medium granular; all moderate permeability. Permeability and av. depth to substratum - 1 & 2, moderately rapid at 42 in.; 3, mod. rapid at 44 in.; 4, moderate at 48 in. Internal drainage - all medium.

**EROSION:** 0 - 1%; 1 - 38%; 2 - 51%; + - 10%.

**LAND CAPABILITY:** I - 11%; II - 36%; III - 37%; IV - 16%.

**SURFACE DRAINAGE:** Excellent; principal waterway is broad, natural grass channel 2000 ft. long, on average 2.3% grade; secondary channel 850 ft. long on 4.6% grade. Small and medium flows largely absorbed by alluvium under channels and passageways in underlying limestone, which may not reach weir.

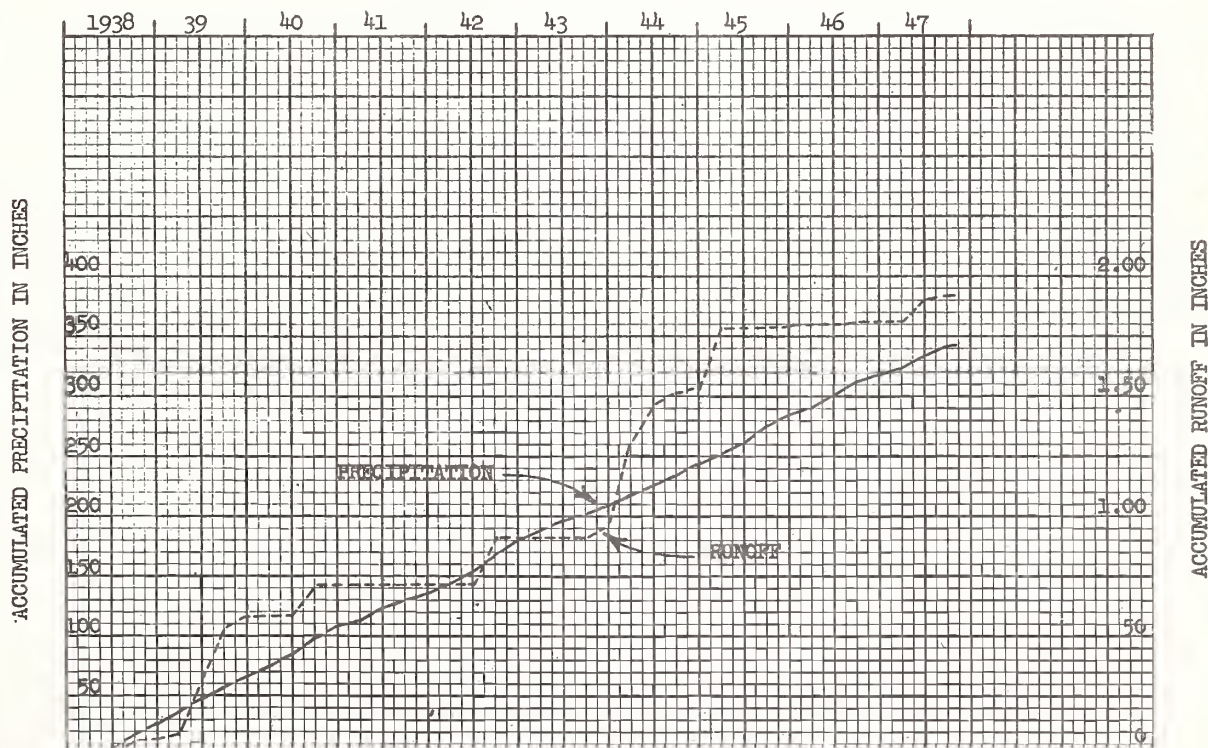
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 30" broad-crested concrete V-notch weir with 3:1 crest slope for 3.5 ft.; 6 hr. chart; precipitation - recording gage with 12 hr. chart 1430 ft. N of weir; second recording gage with weekly chart 360 ft. WNW of weir.

**WATERSHED CONDITIONS:** Prior to 1938 the watershed, which is part of 3 farms, was cropped in short rotations with corn as the row crop. Due to irregular slopes, it was impossible to lay out practical strip cropping, so the central portion (46%) was seeded to alfalfa hay in 1939 & 1940. For six years the alfalfa was cut 2 or 3 times a season and then pastured in the fall. In 1946 & 1947, one year of corn was planted, leaving grassed waterways in the depressions, and alfalfa was seeded back in the winter wheat. The remainder of the area had a rotation of corn-wheat-hay or corn-wheat-wheat-hay, planted generally across the slope. The wheat and hay stubble was fall pastured. Numerous limestone outcrops interfered considerably with tillage and mowing operations in the central and northeastern portions. At times, severe local rilling and sheet erosion occurred where tillage was off-contour. The coarser soil aggregates were caught in wheat or hay areas or grass channels but the finer materials were carried over weir. 14" of silt accumulated in the stilling well in the 10 years of records.

**GENERALLY REPRESENTS:** Rolling cultivated lands of the Appalachian Valleys and Ridges Area with soils of moderate to moderately rapid permeabilities, medium internal drainage, excellent surface drainage and slight to moderate erosion in central Pennsylvania, western Maryland, eastern West Virginia and northwestern Virginia.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of the USDA and the Maryland Agricultural Experiment Station.



Notes: \* Averages based on all months of record. # Summation of monthly averages, but not average of yearly values. Normal P based on 51 years of record (1905-1955) at Keedysville, Maryland. Months of Jan. to Apr. and Oct. to Dec. may include snow and snow melt. <sup>e</sup> Partially estimated. Quality of records: P, excellent; Q, excellent, except 1938, which was fair.

**LOCATION:** Washington Co., Md.; 15 mi. SSE of Hagerstown; Little Antietam and Antietam Creeks, Potomac River Basin.

**AREA:** 80.8 ac. **SHAPE:** Pear with outlet at stem, 1650 ft. wide by 2600 ft. long.  
**SLOPES:** 7% is in 0-3% class; 55% in 3-8%; 34% in 8-15%; 3% in 15-25%; 1% in 25-45%. Aspect WNW.  
**SOILS:** Residual; derived from greenstone schists and metabasalt. 1 Fauquier channery loam 61%; 2 Myersville channery loam 16%; 3 Fauquier silt loam 10%; 4 Rohrer'sville silty clay loam 7%; 5 Monongahela silt loam 6%. Topsoil - all weak structure; 1, 2 & 3, 6 in. av.; 4, 12 in. av.; 5, 8 in. av.; all moderate permeability. Subsoil - 1, 3 & 4 moderate medium angular blocky structure; 2 weak medium subangular blocky; 5 strong fine angular blocky; 1, 2 & 3 moderate permeability; 4 very slow and 5 slow permeability. Permeability and av. depth to substratum - 1 & 3, rapid at 35 in.; 2, rapid at 27 in.; 4, very slow at 48 in.; 5, slow at 36 in. Internal drainage - 1, 2 & 3 medium; 4 & 5 very slow.

**LAND CAPABILITY:** II - 56%; III - 40%; IV - 2%; VII - 2%.

**SURFACE DRAINAGE:** Good, except small areas along stream; principal waterway 1400 ft. on 2.5% grade to springs, with 530 ft. meadow outlet extension on 6.6% grade to 400 ft. diversion terrace, total 2300 ft.

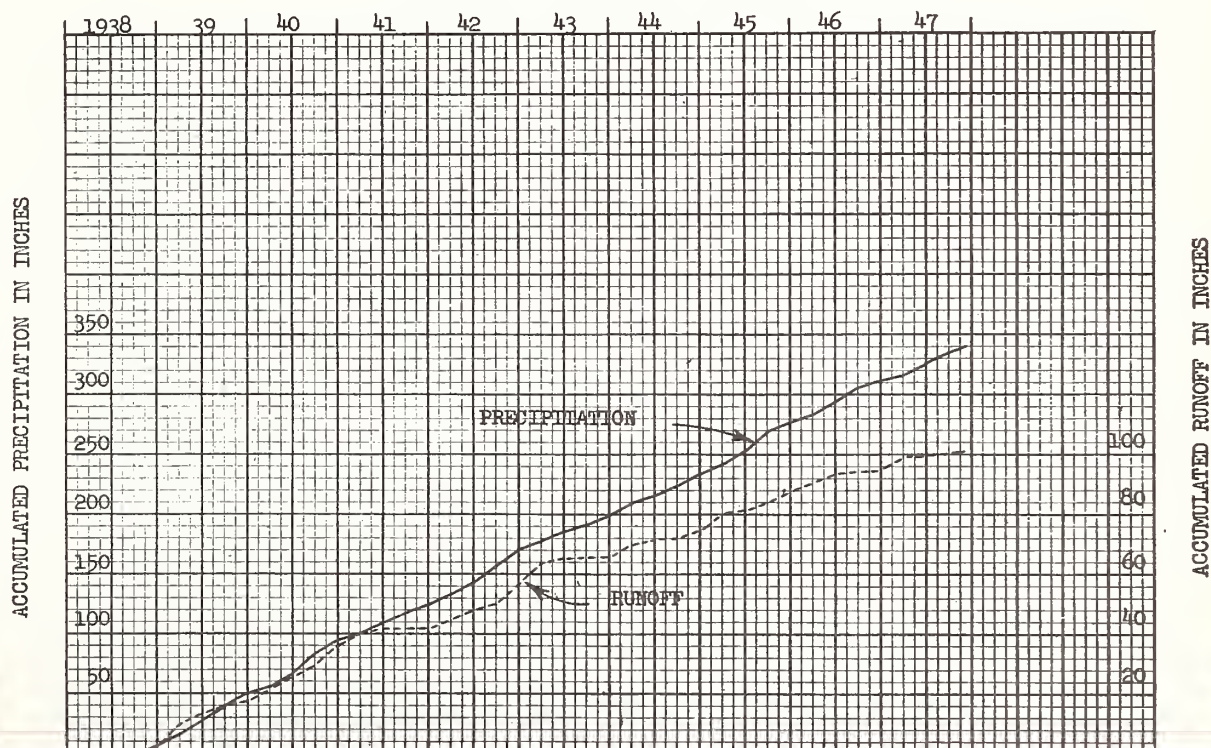
**CHARACTER OF FLOW:** Perennial; continuous. Flow ceased for short periods in extreme droughts.

**INSTRUMENTATION:** Runoff - 16" broad-crested concrete V-notch weir with 3:1 crest for 4 ft.; 6 hr. chart to Oct. 1940, then 24 hr. chart; precipitation - recording gage at runoff station, weekly chart; second recording gage 1920 ft. east of station near watershed line, 12 hr. chart.

**WATERSHED CONDITIONS:** The watershed area was part of 3 farms, 2 of which had conservation plans for strip cropping prepared. The plan was followed on only one farm with the diversion and meadow outlet. Rotations of corn-wheat-hay or corn-wheat-wheat-hay were generally followed. The hay and wheat stubble was pastured in fall and winter. Except on the 20% in contour strips, the cultivation was generally off-contour, and considerable erosion occurred in row crop areas from high intensity rains, and runoff from bare frozen ground. Silt collected behind the weir several times in the first 3 years and was removed as soon as feasible to restore accuracy of gaging records. Crop yields were generally good, but only fair in very dry periods or wet springs where tenant was late getting land prepared for the corn. 23" of silt settled in the stilling well during the 10 years of record, during rising stages of the hydrographs.

**GENERALLY REPRESENTS:** Sloping to steep cultivated lands in the Blue Ridge Mountain Area with soils of very slow to rapid permeabilities, very slow to medium internal drainage, good surface drainage, and none to moderate erosion in central Pennsylvania, western Maryland, eastern West Virginia, and central Virginia.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of the USDA and the Maryland Agricultural Experiment Station.



Notes: \*Averages of all months of record. #Sum of monthly averages. Normal P based on 51 years of record (1905-1955) at Keedysville, Md. Oct. to Apr. may include snow and snow melt. ePartially estimated. Quality of records: P, excellent; Q, generally excellent, except in some years when Dec. to Apr. records were affected by ice in weir and still well and in 1939-40 when they were affected by silt accumulation, which ranged from good to fair.



1-56

AUBURN, ALABAMA Watershed W-1

LOCATION: Lee County, Ala.; about  $1\frac{1}{2}$  mi. W. of Auburn on Campus, Ala. Poly. Inst.; Tallapoosa River Basin.

AREA: 27.0 ac.

SHAPE: Roughly rectangular, about 630 ft. wide by 1,900 ft. long.

SLOPES: 82% is in 2-5% class; 18% is in 8-12% class. Aspect S - SE.

SOILS: Thin layer of Coastal Plain material over Piedmont material; topsoil - coarse (loamy sand) 0-42 in., average 26 in., highly permeable; subsoil - sandy clay, moderately permeable. Internal drainage rapid to moderate. Soil types - Lakeland loamy sand - 22%, Lakeland gravelly loamy sand - 23%, Bradley gravelly sandy loam, thick surface phase - 37%, Bradley gravelly sandy loam - 18%.

EROSION: 1 - 73%, 2 - 27%.

LAND CAPABILITY: II - 37%; III - 45%; IV - 18%.

SURFACE DRAINAGE: Good; natural watershed, terraced (approx. 2700 ft.) and drained into  $1\frac{1}{2}$  ac. fish pond through a single vegetated channel.

CHARACTER OF FLOW: Ephemeral, continuous.

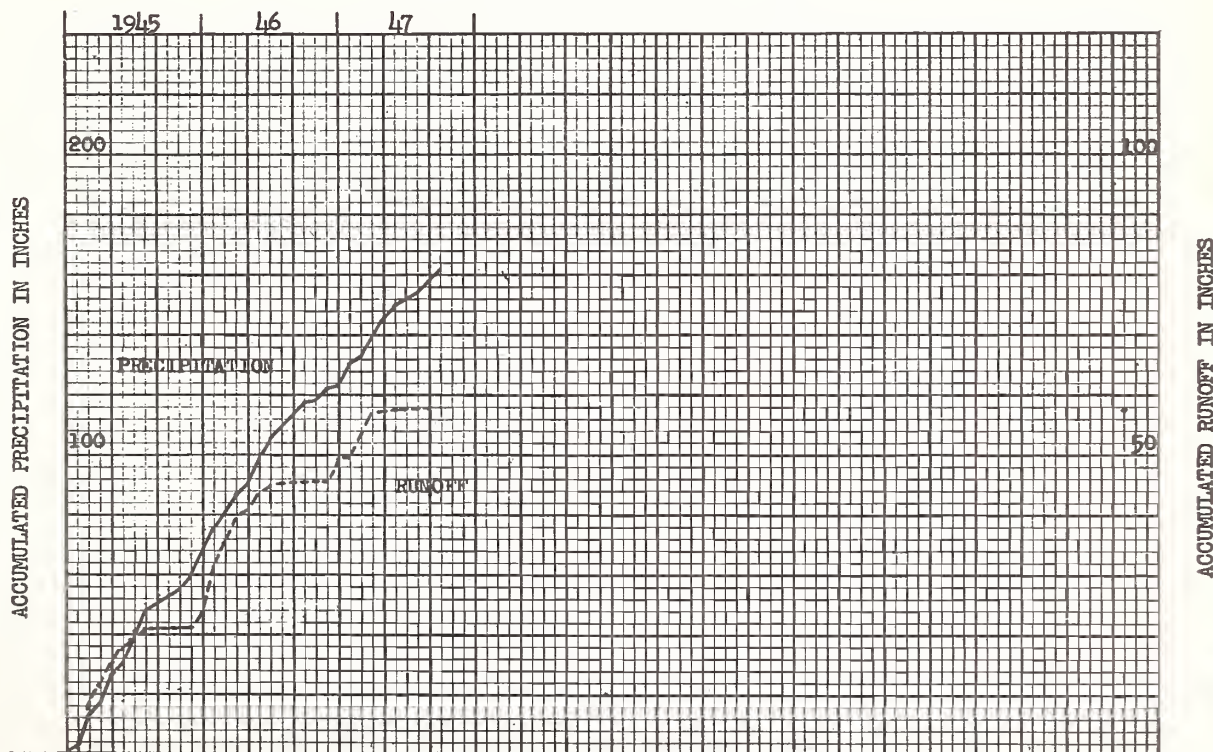
INSTRUMENTATION: Runoff - continuous record of pond surface elevation and pond outflow; pond seepage - continuous record of outflow from a toe-drain tile; pond evaporation - floating pan; precipitation - standard and recording rain gage.

WATERSHED CONDITIONS:

Land used for horticultural and vegetable crop experimental studies - 35% clean tilled; 55% pasture, orchard, and ornamental shrubs; and 10% of lower area around pond in native woods. Reference - "The Hydrology of a Small Area Near Auburn, Alabama" SCS-TP-85, September 1949.

GENERALLY REPRESENTS: Areas of thin Coastal plain soils overlaying Piedmont soils in the transitional areas between the Piedmont Plateau and the Middle and Upper Coastal plain.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of USDA and the Alabama Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Auburn, Ala., Watershed W-1

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945 P	3.26	9.46	4.06	9.45	5.56	7.66	8.56	1.81	2.51	3.47	3.32	7.58	66.70
Q	1.49	6.70	2.84	3.12	3.43	1.81	1.19	0.34	0	T	.02	3.04*	23.98
1946 P	9.18	4.62	6.76	2.37	8.11	6.99	4.92	2.54	4.09	1.81	3.85	1.09	56.33
Q	7.67	3.93	3.92	.97	3.06	1.18	.40	.02	.04	0	.02	.01	21.22
1947 P	7.69	2.15	6.08	5.86	4.87	2.83	2.40	3.53	2.98				38.39
Q	3.54	1.10	3.21	3.46	0.68	.14	.01	.02	0				12.16
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** Av. P	6.22	7.04	5.41	5.91	6.83	7.33	6.74	2.18	3.30	2.64	3.58	4.33	61.51
** Av. Q	4.58	5.32	3.38	2.04	3.24	1.50	.80	.18	.32	T	.02	1.52	22.60
Normal P	4.68	5.53	5.78	4.59	3.71	3.96	5.32	4.61	3.15	2.82	3.12	5.40	52.67

Notes: \* Estimated. \*\* Does not include part year amounts for 1947. Q is calculated as the sum of the pond spillway flow, plus seepage and evap. from pond, adjusted for changes in pond storage. Normal rainfall based on 40 yr. record at Auburn, Ala. Ref. SCS-TP-85, Sept. 1949.



**LOCATION:** Indian River Co., Fla.; district surrounds the City of Vero Beach, but drainage from city is not a factor in runoff; Atlantic coastal drainage.

**AREA:** 49,915 ac. (78.0 sq. mi.) **SHAPE:** Roughly triangular, about 24 mi. wide by 14 mi. long.

**SLOPES:** Nearly all the area is in the 0-2% class. Aspect E.

**SOILS:** Usually classed as somewhat poorly drained sands, but under lowered water tables internal drainage ranges from medium to very rapid. Surface layers are fine sands varying in depths from 12 to 60 inches with very rapid permeability; underlying layers are organic hardpan, or clay or marl which vary greatly in thickness and hardness, permeability ranges from moderate to moderately rapid. Soil types - Leon and Immokalee fine sand 30%, Pompano fine sand 25%, Felda fine sand 15%, Adamsville fine sand 10%, misc. soils 20%.

**EROSION:** There is little or no erosion.

**LAND CAPABILITY:** III - 20%; IV - 80%.

**SURFACE DRAINAGE:** Fair, entire area is a well maintained drainage district of low relief shielded from outside surface inflow by dikes, and drained internally by a 419 mile network of canals; outflow is to tidewater through 3 outfall canals.

**CHARACTER OF FLOW:** Perennial, continuous.

**INSTRUMENTATION:** Runoff - continuous stage recorders on 3 outfall canals; precipitation - four 7-day recording rain gages, rainfall over watershed averaged by Thiessen method.

#### WATERSHED CONDITIONS:

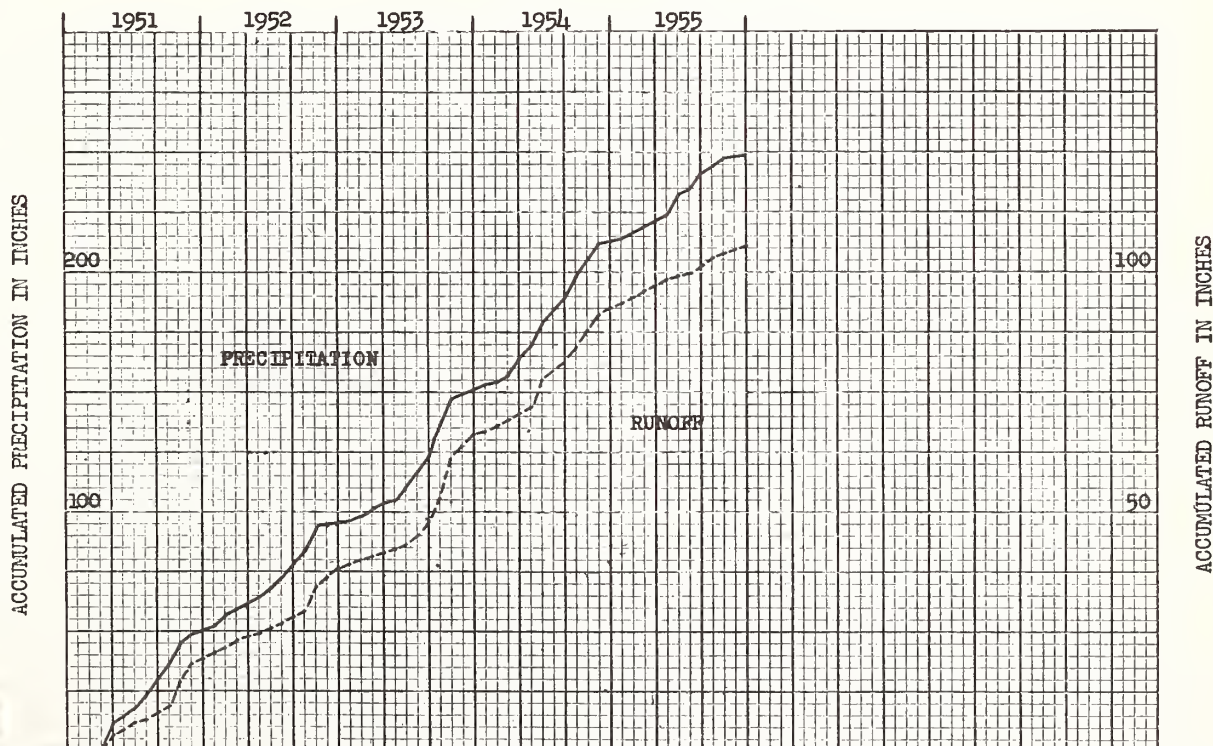
This area has been under artificial drainage for many years. Outflow is by gravity. Radial gate controls installed on 2 of the 3 outfall canals in 1955. Land use in the District has been

	1951 (acres)	1953 (acres)	1955 (acres)
Groves (citrus)	10,000	16,000	19,000
Improved pasture	6,000	10,000	16,000
Unimproved range & forest	34,000	24,000	15,000

Citrus groves are irrigated during the winter dry season by an estimated 800 to 1,000 regulated artesian wells.

**GENERALLY REPRESENTS:** Areas of low relief with gravity drainage in the southern Flatwoods of Coastal Plain with flow augmented during the dry season by artesian irrigation.

ACCUMULATED PRECIPITATION AND RUNOFF





**MONTHLY PRECIPITATION AND RUNOFF (Inches) Vero Beach, Fla., Watershed W-1**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1951 P				10.46	4.49	2.81	7.01	4.79	5.83	9.65	3.59	0.55	49.18
Q				3.52	1.26	0.75	1.31	1.52	1.16	6.15	2.13	1.10	18.90
1952 P	2.08	4.89	2.95	2.27	3.27	2.11	5.05	6.78	4.84	9.75	.21	.05	44.25
Q	1.14	1.68	1.24	.91	.90	.82	.98	1.26	1.10	5.91	1.41	1.12	18.47
1953 P	1.87	1.65	3.57	3.38	.94	4.45	7.38	7.07	11.46	10.32	3.91	1.65	57.65
Q	.88	.76	1.06	.95	.81	.94	2.00	2.32	5.86	8.37	2.34	1.58	27.87
1954 P	.73	2.13	2.26	7.89	5.43	10.05	4.82	4.60	9.32	6.32	5.98	1.02	60.55
Q	1.11	1.00	1.10	1.62	1.20	5.88	1.94	1.47	2.60	4.31	3.13	1.15	26.51
1955 P	2.27	1.92	3.48	2.29	2.83	6.93	3.15	6.97	2.59	2.74	0.11	1.85	37.13
Q	1.20	1.07	1.30	1.10	0.85	1.22	1.41	1.54	1.14	1.22	0.86	1.02	13.93
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*Av. P	1.74	2.65	3.06	3.96	3.12	5.88	5.10	6.36	7.05	7.28	2.55	1.14	49.89
*Av. Q	1.08	1.13	1.17	1.14	0.94	2.22	1.58	1.65	2.68	4.95	1.94	1.22	21.70
Normal P	2.68	2.13	2.50	2.76	4.33	5.84	6.06	6.40	7.75	6.36	2.56	1.99	51.36

**Notes:** \*Does not include part year amounts for 1951. Normal P based on mean between 54 yr. (1901-1954) W.B. record at Ft. Pierce, Fla., and 42 yr. (1913-1954) W.B. record at Fellsmere, Fla. Quality of Records: P=Fair; Q=2 canals Poor, 1 canal Good.

7-57

VERO BEACH, FLORIDA Watershed W-2 (Upper Taylor Creek)

LOCATION: Okeechobee County, Fla. Runoff gaging site is about 3 mi. N. of City of Okeechobee on Cemetery Road. Taylor Creek empties into Lake Okeechobee

AREA: 63,100 ac. (98.6 sq. mi.) SHAPE: Broadleafed, about 8 mi. wide by 15 miles long.

SLOPES: Nearly all the area is in the 0-2% class. Aspect S-SE

SOILS: Sandy and very friable with above average infiltration rates and little surface runoff until they become saturated. Water table is normally close to ground surface. Soil types are predominantly Leon, Imokalee, Charlotte, Pompano, and Arzell.

EROSION: Very little, varies from plus (+) to one (1).

LAND CAPABILITY: II - 3%; III - 9%; IV - 88%.

SURFACE DRAINAGE: Poor; a natural watershed containing a number of ponds and sloughs with relatively flat topography. Some ditching for pasture improvement over a minor part of the area. Length of watercourse 15.6 mi.

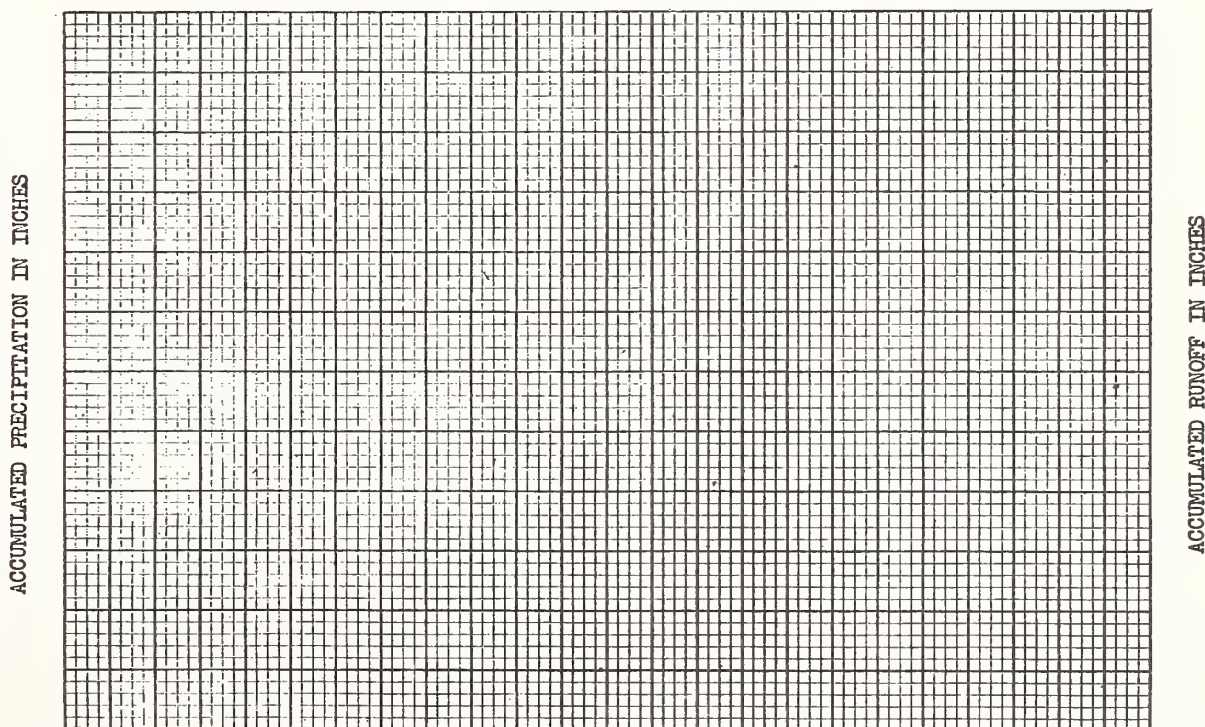
CHARACTER OF FLOW: Spring-fed (ground water seepage) intermittent, continuous.

INSTRUMENTATION: Runoff - natural control, continuous water stage recorder, rating established by current meter (USGS); precipitation - six 7-day recording and one standard WB rain gage.

WATERSHED CONDITIONS: Present land use: cropland 1%; pasture - improved 29%, unimproved 47%; woodland - protected 3%, grazed 14%; miscellaneous - marsh 2%, other 1%.

GENERALLY REPRESENTS: Partially improved rangeland with mixed woodland of low relief largely under natural drainage conditions in the southern Flatwoods of Coastal Plain.

ACCUMULATED PRECIPITATION AND RUNOFF



(Upper Taylor Creek)

[illegible]

Notes: Records began July 1955. No normal P established for this area.



7-57

## VERO BEACH, FLORIDA Watershed W-3 (Taylor Creek Sub-Area)

LOCATION: Oksechobee County, Fla. Runoff gaging site is approx. 11 mi. (airline) N-NW of City of Oksechobee on State Road #68. Northern reach of Taylor Creek Watershed.

AREA: 10.000 ac. (15.6 sq. mi.) SHAPE: Roughly rectangular, about 3 mi. wide by 6 mi. long.

SLOPES: Most of the area is in the 0-2% class. Aspect SE.

SOILS: Sandy and very friable with above average infiltration rates and little surface runoff until they become saturated. Water table is normally close to ground surface. Soil types are predominantly Leon, Imokalee, Charlotte, Pompano, and Arzell.

EROSION: Very little, varies from plus (+) to one (1).

LAND CAPABILITY: II - 1%; III - 3%; IV - 96%.

SURFACE DRAINAGE: Generally poor. A natural watershed. Stream cuts through several Pleistocene marine terraces giving an alternating "table land-fall line" type topography with a broad step like character. Some ditching for pasture improvement. Length of water course 6.8 mi.

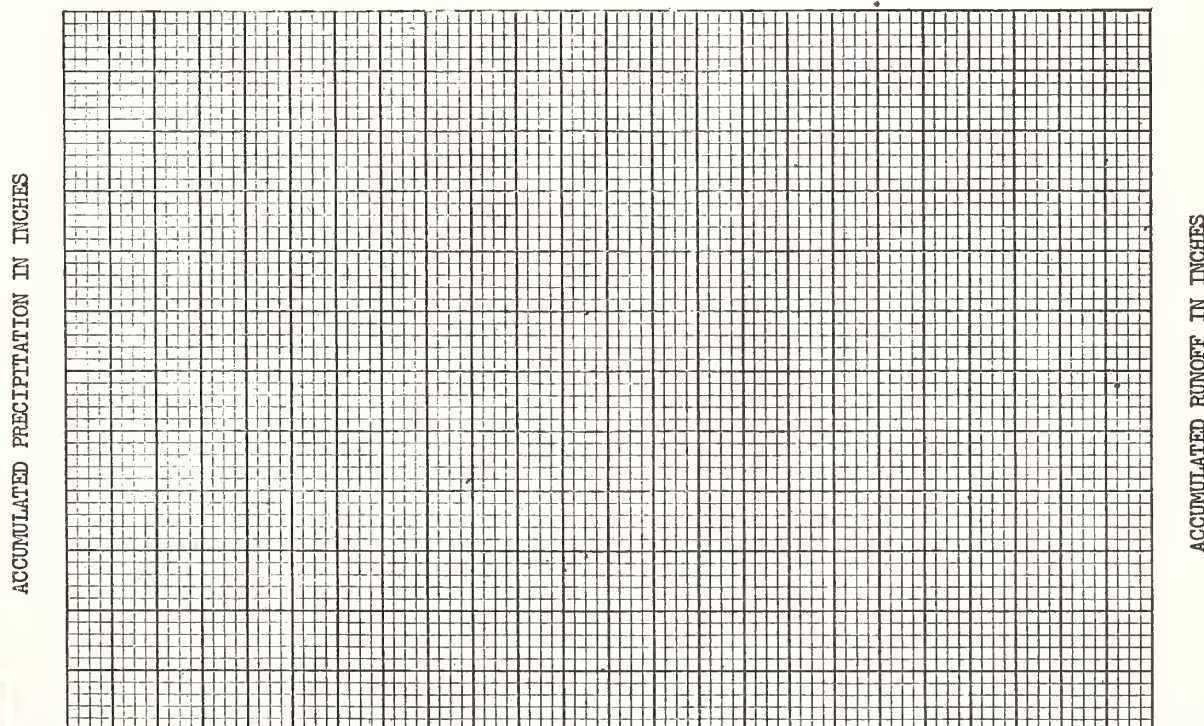
CHARACTER OF FLOW: Spring-fed (ground water seepage) intermittent, continuous.

INSTRUMENTATION: Runoff - natural control, continuous water stage recorder, rating established by current meter (USGS); precipitation - two recording rain gages.

WATERSHED CONDITIONS: Present land use: crop land 1%; pasture - improved 63%, unimproved 34%; woodland - protected 0%, grazed 1%; miscellaneous - marsh 0%. other 1%.

GENERALLY REPRESENTS: Partially improved rangeland of low relief under gravity drainage conditions along the old Talbot and Penholoway marine terrace formation in the southern Flatwoods of Coastal Plain.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of USDA, the Florida Agricultural Experiment Station, and the Central and Southern Florida Flood Control District

(Taylor Creek Sub-Area)

[illegible]

Notes: Rainfall records began July 1955; runoff records began October 1955. No normal P established for this area.



LOCATION: Sumter Co., Ga.; 7 mi. N.W. of Americus; Little Muckalee Creek, Flint River.

AREA: July to Dec. 1, 1938 - 17.9 ac.; SHAPE: Roughly a quadrangle, sides - 1900 ft., angle  $87^{\circ}$ , 875 ft., to June 30, 1942 - 23.5 ac.; thereafter - 22.8 ac. angle  $69^{\circ}$ ; 1950 ft., angle  $114^{\circ}$ , 220 ft.

SLOPES: 34% is in 0-3% class; 66% in 3-7%. Aspect W-SW.

SOILS: Norfolk sandy loam - 83%, moderately coarse-textured topsoil 2 to 6 in., fine-textured subsoil 20 in. thick, impeding stratum at 22 to 26 in.; Ruston sandy loam - 12%, moderately coarse-textured topsoil 1 to 3 in., fine-textured subsoil 14 in. thick, impeding stratum at 15 to 17 in.; Gilead sandy and clay loams - 4%; Jamison loamy sand - 1%.

EROSION: 1 - 52%; 2 - 43%; 3 - 3%; 4 - 1%; + - 1%.

LAND CAPABILITY: II - 99%; III - 1%.

SURFACE DRAINAGE: Good, principal waterway - 1600 ft. Completely terraced; 6 terraces, average terrace segment length of 850 ft. with average grade of 0.12%.

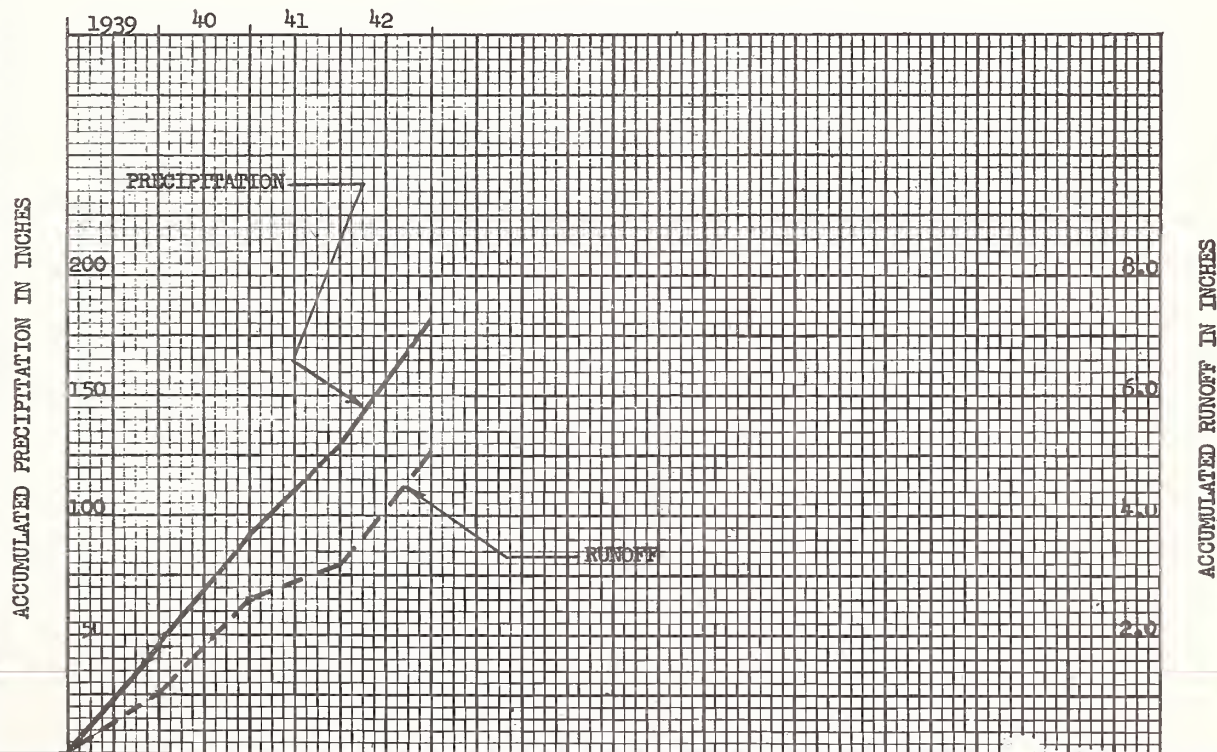
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - pre-calibrated, triangular, concrete weir with 3:1 side slopes, recording gage - 6 hr. chart. Precipitation - recording gage - 12 hr. chart.

WATERSHED CONDITIONS: 1938 - corn and velvet beans 85%, cotton 15%; 1939 - corn and velvet beans 56%, cotton 44%; 1940 - corn and velvet beans 64%, cotton followed by fall oats 36%; 1941 - oats, velvet beans, followed by fall oats 29%, peanuts 19%, corn 15%, cotton 37%; 1942 - corn and velvet beans 18%, cotton 26%, wheat 29%, peanuts 27%.

GENERALLY REPRESENTS: Cultivated sandy loam areas of the Middle and Upper Coastal Plain problem area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Georgia State Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Americus Ga., Watershed W-I**

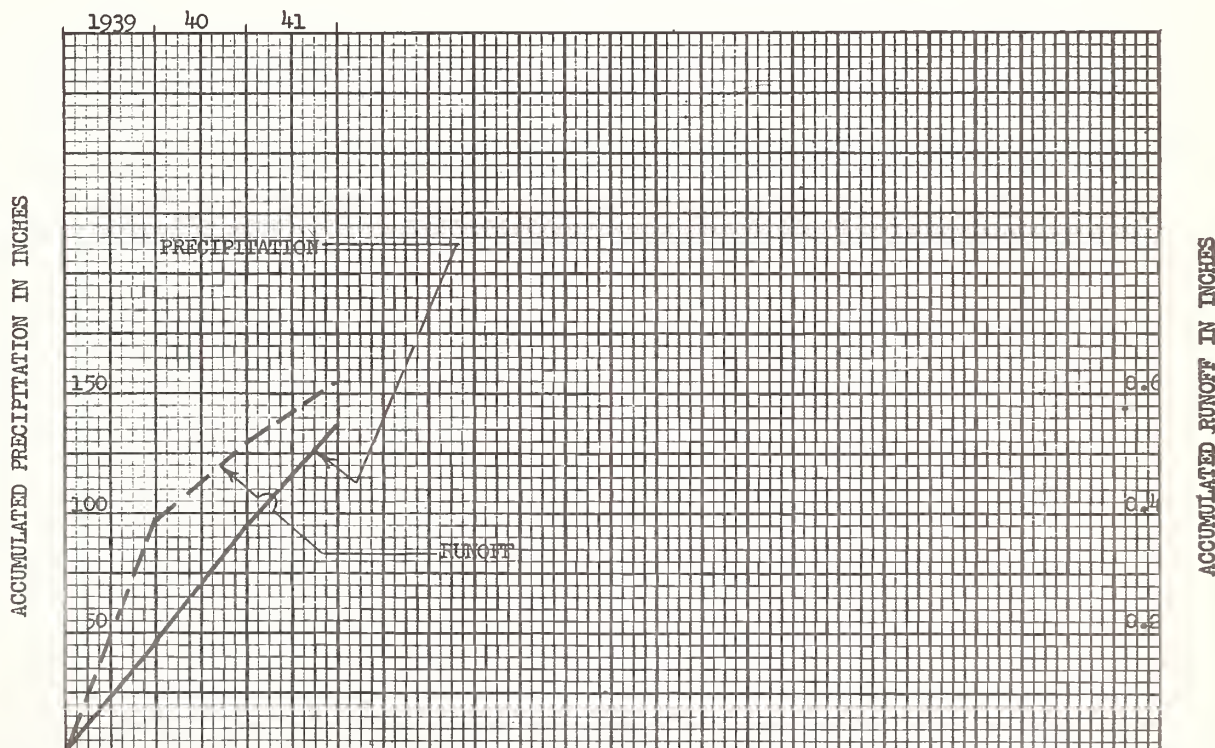
Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q								1.10 0	7.00 .90	0.56 0	1.39 0	2.64 .01	12.69 .91
1939 P Q T	2.31 .25	8.70 .25	3.99 .11	4.02 .01	2.48 0	5.02 .09	5.86 .39	5.26 .15	2.62 .02	.14 0	.68 0	4.12 .04	45.20 1.06
1940 P Q	3.37 .02	8.26 .96	3.83 .01	2.82 T	1.60 0	6.91 .36	5.50 .08	3.10 .09	.59 0	.18 0	6.67 .02	2.96 T	45.79 1.54
1941 P Q	1.77 .01	2.64 0	4.87 T	.35 0	1.14 0	4.84 .05	5.00 .09	2.70 .03	1.78 0	3.29 .01	.81 T	9.34 .34	38.53 .53
1942 P Q	3.42 .05	5.39 .10	6.22 .19	1.45 .01	1.43 0	7.01 *.29	4.67 .04	8.10 1.02	6.80 .21	1.00 T	1.95 T	5.03 .04	52.47 1.95
1943 P Q * .04	13.02 *.04	1.36 .04	11.48 *.31	4.02 .10	2.90 0								32.78 .49
P													
Q													
P													
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** Av. P	2.72	6.25	4.73	2.16	1.66	5.94	5.26	4.79	2.95	1.15	2.53	5.36	45.50
** Av. Q	.02	.33	.08	T	0	.20	.15	.32	.06	T	T	.11	1.27
Normal P	4.45	4.89	5.36	3.81	3.40	4.31	5.53	5.23	3.23	2.31	2.62	3.95	49.09

**Notes:** \*\* Does not include part year amounts. \* Partially estimated. T-Trace runoff. Normal P based on 62.yr. record (1885 - 1946) at Americus, Ga. 1 mi. NE. Quality of records; P-good, Q-good.

3-56

AMERICUS, GEORGIA Watershed W-IILOCATION: Schley Co., Ga.; 10.5 mi. N.W. of Americus, Ga.; Big Muckalee Creek, Flint River.AREA: 42.8 ac.SHAPE: Roughly triangular, sides 2250 ft., 1875 ft., and 2050 ft.SLOPES: 4% is in the 0-3% class; 96% in 3-7%. Aspect E-NE.SOILS: Ruston loamy sand 39%, coarse-textured topsoil 12 in., subsoil 24 in. thick over friable sandy clay; Ruston sandy loam 4%; Norfolk sand 49%, coarse-textured topsoil 8 in., subsoil 12 in. thick over sand; Orangeburg sandy and clay loams 8%, coarse-textured topsoil 2 to 8 in. over fine-textured subsoil. Well drained to somewhat excessively drained.EROSION: 1 - 95%; 2 - 4%; 3 - 1%.LAND CAPABILITY: II - 51%; IV - 49%.SURFACE DRAINAGE: Length of principal waterway - 3100 ft., completely terraced, 10 terraces with lengths varying from 150 to 1450 ft., average length - 790 ft., with average grade of .073%.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - pre-calibrated, triangular, concrete weir with 2:1 side slopes, recording gage - 6 hr. chart. Precipitation - 2 recording gages, 12 hr. charts, through August 1940; then 1 recording gage through Feb. 1942.WATERSHED CONDITIONS: Cultivated - 82%, farmed in five fields; 1938 - Austrian winter peas followed by corn 20%, corn and peas 48%, peanuts - 9%, oats 3%, idle land 2%; 1939 - same as for 1938; 1940 - idle land medium cover 68%, peanuts 9%, peas - sowed 2% - rows 3%; 1941 - oats followed with peas 25%, idle land medium to heavy cover 48%, Austrian winter peas followed with corn 9%; Loblolly pine planted in 1938 (very little cover in 1938 to good cover in 1943) 17%; other woodland (pine) 1%. All runoff must flow through the loblolly pine area for a distance of 500 to 1000 ft.GENERALLY REPRESENTS: Sand areas of the Middle and Upper Coastal Plain problem area.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Georgia State Agricultural Experiment Station

## Americus, Ga.; Watershed W-II

Month		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P Q								0.91 T	8.62 .58	0.54 0	2.02 T	3.21 .04	15.30 .62
1939	P Q	3.05 .03	10.07 .29	3.40 .02	3.85 .01	2.81 T	2.99 T	5.16 T	6.67 .01	4.06 .02	.10 0	.63 0	3.57 .01	46.36 .39
1940	P Q	3.24 T	8.35 .06	2.86 T	3.52 T	2.69 .01	7.13 .02	7.05 .03	2.83 T	1.01 0	.46 0	7.37 .01	3.28 T	49.79 .13
1941	P Q	1.88 T	2.91 T	4.48 T	.86 0	1.47 0	5.06 T	4.52 T	2.85 0	2.41 0	3.00 T	3.30 .04	8.99 .06	41.73 .10
1942	P Q	3.42 T	5.46 .02	6.42 .01										15.30 .03
	P													
	Q													
	P													
	Q													
	P													
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** **	Av. P Av. Q	2.72 .01	7.11 .12	3.58 .01	2.74 T	2.32 T	5.06 .01	5.58 .01	4.12 T	2.49 .01	1.19 T	3.77 .02	5.28 .02	45.96 .21
Normal	P	4.45	4.89	5.36	3.81	3.40	4.31	5.53	5.23	3.23	2.31	2.62	3.95	49.09

Notes: \*\* Does not include the part year amounts for 1938 and 1942. T-trace runoff. Normal P based on 62 yr. record (1885 - 1946) at Americus, Ga. 1 mi. NE. Quality of records; P-good, Q-good.



LOCATION: Schley Co., Ga.; 10 mi. N.W. of Americus, Ga.; Big Mukalee Creek, Flint River.

AREA: 32.0 ac.

SHAPE: Roughly quadrangular; side - 1800 ft. - angle 75°, side 860 ft. - angle 114°, side 1590 ft. - angle 84°, side 1020 ft.

SLOPES: 100% in the 3-7% class.

SOILS: Orangeburg sandy loam 40%, moderately coarse-textured topsoil 9 to 11 in., fine textured, friable, subsoil 25 in. thick over 40 in. of slightly heavy sandy clay; Ruston sandy loam 57%, coarse-textured topsoil 6 to 8 in., coarse-textured subsoil 14 in. thick over 36 in. of fine-textured sandy clay; Norfolk sand - 3%.

EROSION: 1 - 69%, 2 - 31%.

LAND CAPABILITY: II - 97%; III - 3%

SURFACE DRAINAGE: Maximum length of principal waterway - 2500 ft.; completely terraced, 8 terraces, 16 segments ranging from 350 ft. to 1850 ft. in length, average segment length - 800 ft., average grade 0.094%.

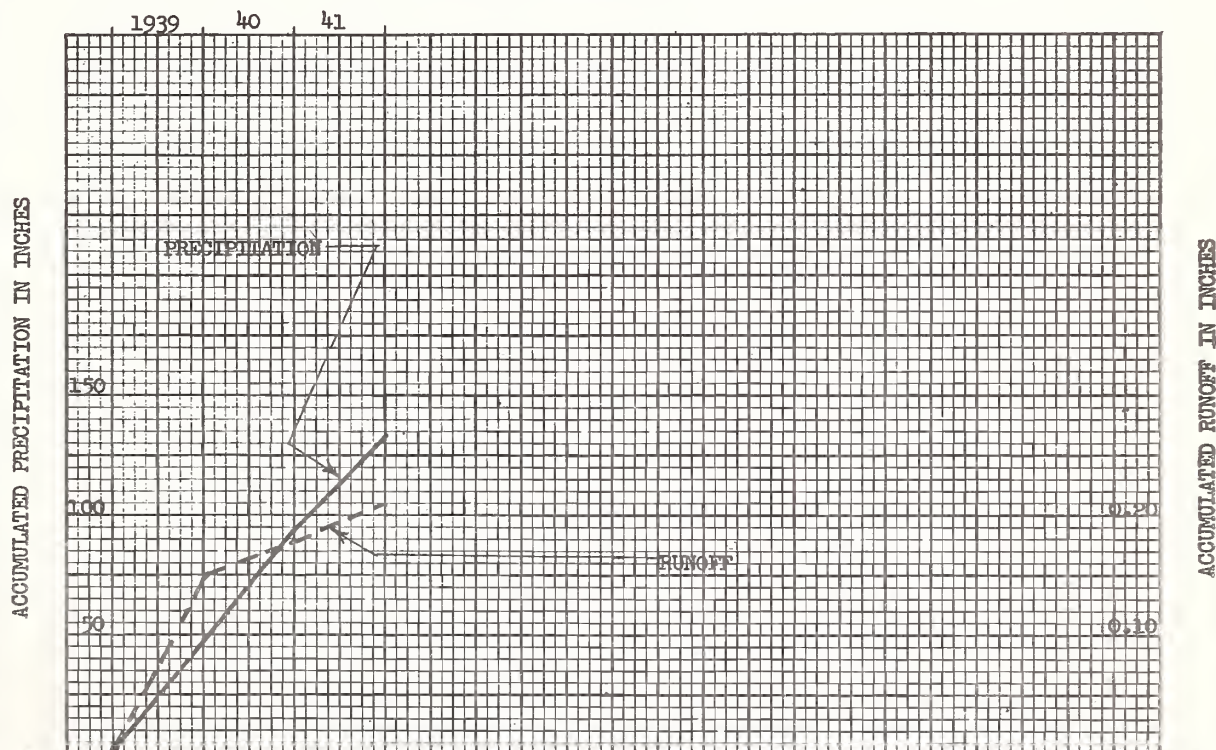
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - pre-calibrated triangular, concrete weir with 2:1 side slopes, 6 hr. chart; precipitation - recording gage, 12 hr. chart.

WATERSHED CONDITIONS: 1938 pine tree planting - 13%; waterway - 1%; 1938 - cow peas and volunteer crotalaria 86%; 1939 - idle 82%, cotton and vetch (good cover) 4%; 1940 - idle (good cover) 79%, corn and weeds 7%; 1941 - corn and weeds (late heavy cover) 39%, idle (heavy cover) 42%, cow peas 5%.

GENERALLY REPRESENTS: Cultivated and wooded loamy sand areas of the Middle Coastal Plain problem area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Georgia Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Americus, Ga., Watershed W-III

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q								0.88 0	8.57 .48	0.53 0	1.87 0	2.66 0	14.51 .48
1939 P Q	3.08 T	9.94 .10	3.13 0	3.97 0	2.96 T	3.25 .03	6.27 .01	6.80 .01	3.03 0	.09 0	.66 0	3.51 T	46.69 .15
1940 P Q	3.15 T	6.93 0	2.84 0	3.24 0	2.61 .01	6.05 T	6.27 .02	3.06 T	.94 0	.41 0	7.52 T	3.14 0	46.16 .03
1941 P Q	1.70 0	2.70 0	4.00 0	.74 0	1.42 0	5.25 T	4.57 T	2.42 0	2.55 T	3.18 T	2.67 .01	9.67 .02	40.87 .03
1942 P Q	3.33 0	5.00 T											8.33 0
P													
Q													
P													
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** Av. P	2.64	6.52	3.32	2.65	2.33	4.85	5.70	4.09	2.18	1.23	3.62	5.44	44.57
** Av. Q	T	.03	0	0	.01	.01	.01	T	T	T	T	.01	.07
Normal P	4.45	4.89	5.36	3.81	3.40	4.31	5.53	5.23	3.23	2.31	2.62	3.95	49.09

**Notes:** Does not include the part year amounts for 1938 and 1942. T - Trace runoff. Normal P based on 62 yr. record (1885 - 1946) at Americus, Ga. 1 mi. NE. Quality of records; P-good, Q-good.



LOCATION: S. W. corner Schley Co., Ga.; 13 mi. N. W. of Americus; Big Muckalee Creek, Flint River Basin.

AREA: 59.2 ac.

SHAPE: Roughly triangular, sides 3550 ft., 2810 ft. and 1780 ft. long.

SLOPES: 100% is in the 0-3% class. Aspect E-SE.

SOILS: Greenville loam and sandy loam 92%, sandy loam or loam topsoil 6 to 8 in., slightly heavy to friable sandy clay subsoil 6 to 8 in. thick over heavy, slightly impervious to impervious, sandy clay to clay stratum; Red Bay sandy loam 3%; Cope loam 5%.

EROSION: 1 - 94%; 3 - 1%; + - 5%.

LAND CAPABILITY: I - 99%; III - 1%.

SURFACE DRAINAGE: No defined channel, maximum overland flow distance about 3550 ft.

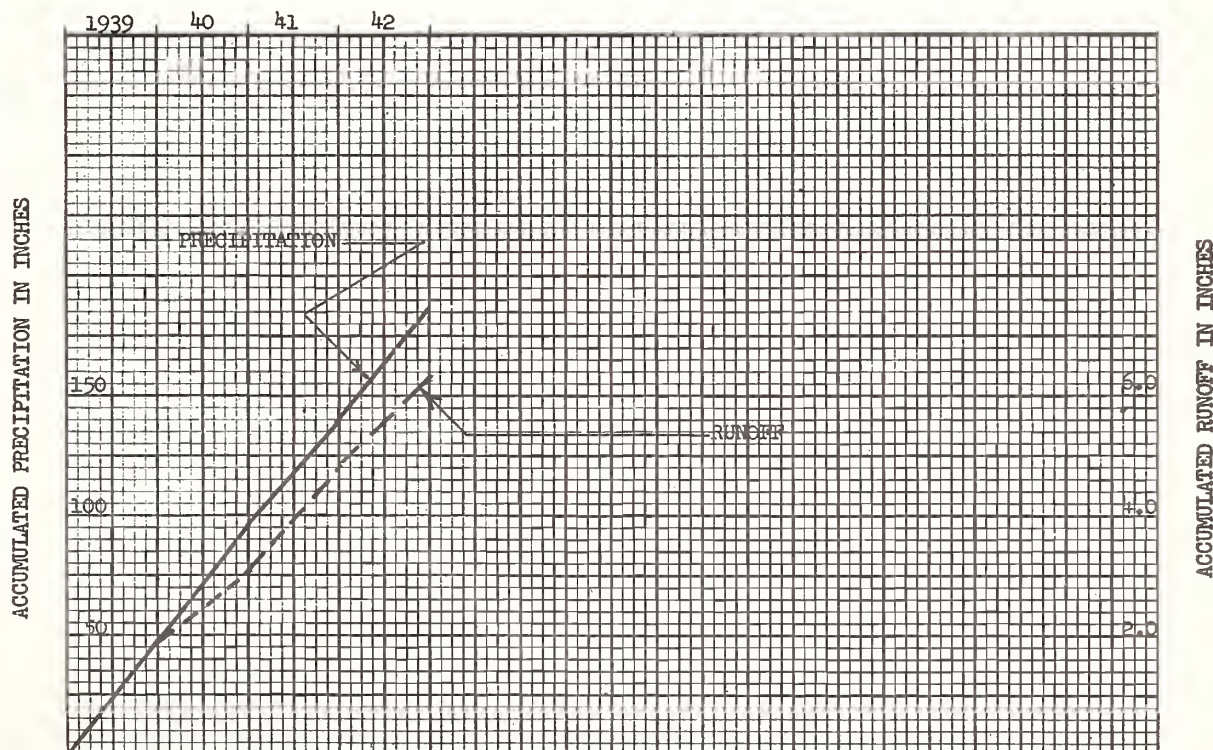
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - pre-calibrated, triangular, concrete weir with 2:1 side slopes, recording gage 6 hr. chart. Precipitation - 2 recording gages 12 hr. charts, one located at runoff measuring station and one at extreme end of watershed.

WATERSHED CONDITIONS: Homelot and channel - 2%; road - 5%. 1938 - idle 57%, corn 15%, cotton 11%, peanuts 10%. 1939 - wheat and hay (good cover) 27%, cotton 27%, corn 8%, peanuts 6%, peas 20%, pasture 1%, idle 2%. 1940 - weeds and hay (good cover) 18%, cotton 57%, corn 9%, peas 3%, peanuts 6%. 1941 - medium to heavy cover of weeds and grass until Dec., then planted to oats, 75%; medium to heavy cover of weeds and grass, then peas (light cover) until Dec., then planted to oats (very light cover) 7%; cotton 2%, corn 6%; and peas 3%. 1942 - small grain 84%, peanuts 6%, idle 3%.

GENERALLY REPRESENTS: Cultivated, flat areas with relatively impervious subsoils found in the Middle Coastal Plain problem area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Georgia State Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Americus, Ga., Watershed W-IV

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P								2.25	8.12	0.51	1.32	2.61	14.81
Q								.09	.66	0	0	.04	.79
1939 P	3.23	10.83	3.43	3.72	2.18	3.66	6.66	6.57	2.89	.14	.75	3.51	47.57
Q	.09	1.16	.17	.09	T	.03	.21	.17	.04	0	0	.03	1.99
1940 P	3.42	8.21	2.93	3.23	2.39	5.34	7.51	4.81	.58	.38	7.06	3.60	49.46
Q	.05	.54	.01	.02	.03	.04	.24	.03	0	0	.09	.03	1.08
1941 P	1.64	2.77	4.18	.73	1.37	6.17	5.64	3.06	3.00	2.80	1.82	9.57	42.75
Q	.01	.01	.01	0	T	.11	.27	.05	.10	.15	.05	1.01	1.77
1942 P	3.37	4.66	6.31	1.18	1.52	6.70	3.66	5.66	5.68	1.02	1.79	4.77	46.32
Q	.18	.17	.38	.01	0	.25	.14	.25	0	0	T	.05	1.43
1943 P	14.25	1.43	11.16	3.38									30.22
Q	3.59	.08	2.03	.06									5.76
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** Av. P	2.92	6.62	4.21	2.22	1.86	5.47	5.87	5.02	3.04	1.08	2.85	5.36	46.52
** Av. Q	.08	.47	.14	.03	.01	.11	.22	.12	.04	.04	.04	.28	1.58
Normal P	4.45	4.89	5.36	3.81	3.40	4.31	5.53	5.23	3.23	2.31	2.62	3.95	49.09

**Notes:** Does not include the part year amounts for 1938 and 1943. T - trace runoff. Normal P based on 62 yr. record (1885 - 1946) at Americus, Ga. 1 mi. N.E. Quality of records; P-good, Q-good.

LOCATION: Oconee Co., Ga.; 7 mi. S.W. of Athens, near Watkinsville, Ga., Oconee River Basin.

AREA: 19.2 ac.

SHAPE: Fan shaped; about 1200 ft. long by 900 ft. wide.

SLOPES: 21% is in the 2-7% class; 16% in 7-10%; 53% in 10-14%; 10% in 14-25%. Aspect W.

SOILS: Piedmont material; topsoil from 3 to 5 in. deep, ranging in texture from sandy loam to clay loam, moderately rapid permeability; subsoil fine textured, red, and friable. Internal drainage medium to rapid. Some undifferentiated well drained alluvial soils. Soil types - Madison sandy loam 10%, Cecil sandy loam 50%, Cecil clay loam 10%, alluvial soil 30%.

EROSION: 2 - 60%, 3 - 10%, 4 (alluvial deposits) - 30%.

LAND CAPABILITY: II - 21%, III - 16%, IV - 53%, VI - 10%.

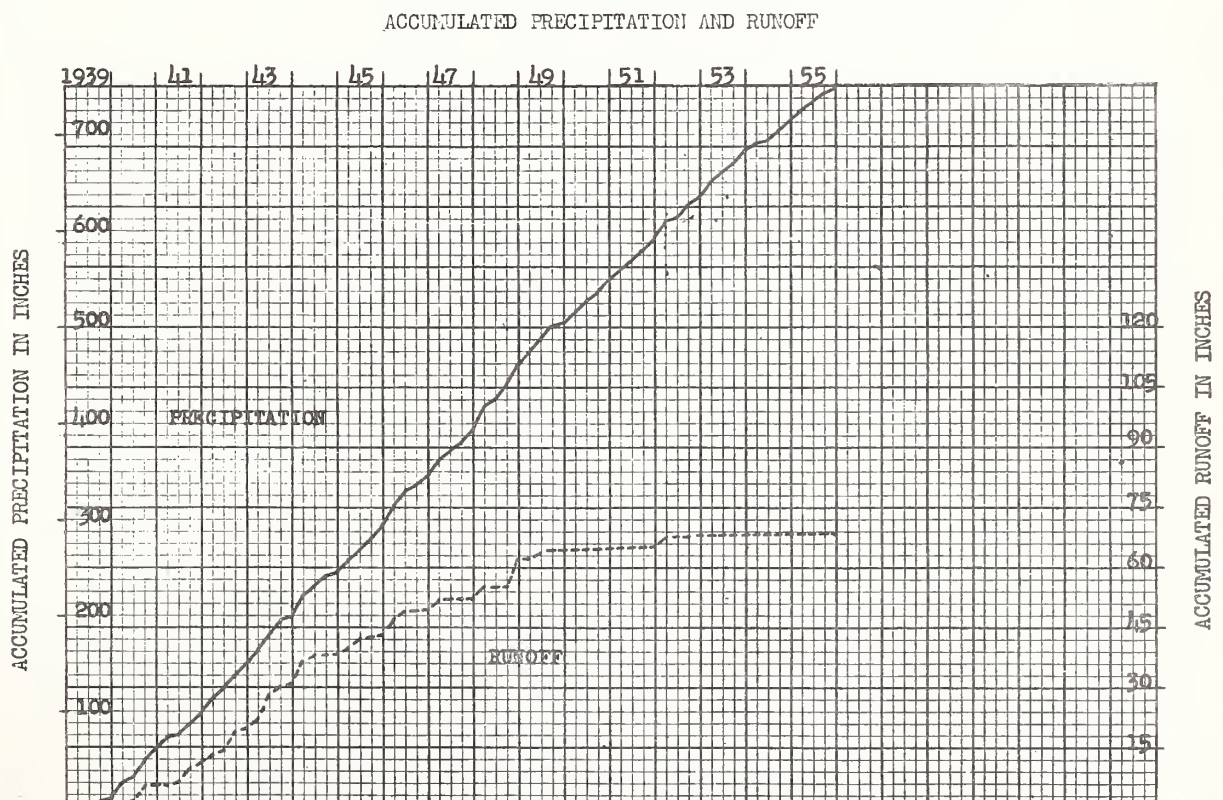
SURFACE DRAINAGE: Good; fairly well defined drainageway meandering through breaks in the bench terraces for about two-thirds the length of watershed. Some pocketing of water above terraces.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested V-notch weir with FW-1 waterlevel recorder, 12 hr. chart; precipitation - standard and recording rain gage, 12 hr. chart.

WATERSHED CONDITIONS: Bench terraced. Prior to 1939 - farmed as a cultivated field, usually in row crops, generally on the contour. 1939-44 - oats, cowpeas, and cotton in a 2-yr. rotation. 1945-55 - Kudzu (Kudzu and Rescue grass 1950-55). Reference - "Rainfall and Runoff Characteristics on a Small Watershed in the Southern Piedmont" SCS-TP-114, August 1953.

GENERALLY REPRESENTS: Areas in the igneous and schist area of the southern part of the Piedmont Plateau on moderately sloping, well drained land, with old type bench terraces.



Cooperative Project of the USDA and Georgia Agricultural Experiment Stations.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Watkinsville, Georgia Watershed W-1**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q									3.25 .02	.49 T	.31 0	3.27 .02	7.32 .04
1940 P Q	5.13 .08	4.37 .57	4.38 .09	2.49 .01	2.03 .01	4.08 .20	4.33 .25	12.69 4.27	.37 0	.88 0	4.05 .01	4.27 .02	49.57 5.51
1941 P Q	2.32 .05	1.59 T	5.41 .26	.74 T	.60 0	4.08 .31	8.13 3.04	2.63 .07	1.66 .05	1.68 0	1.33 .02	7.84 1.42	38.01 5.22
1942 P Q	2.81 .01	3.42 .09	9.19 2.00	1.03 0	7.13 1.83	2.02 0	2.79 .01	8.87 3.39	3.07 .34	4.32 .33	.70 .03	6.19 1.71	51.54 9.74
1943 P Q	7.75 3.82	1.05 .06	6.68 .73	5.70 1.43	1.92 .02	8.05 1.37	8.74 2.68	1.28 0	3.18 0	.27 0	2.29 .02	4.23 .15	51.14 10.28
1944 P Q	3.94 .42	7.60 1.53	9.46 3.26	6.77 2.15	1.90 T	1.08 0	2.97 .11	3.33 .01	3.27 .01	1.74 0	1.97 T	2.32 0	46.35 7.49
1945 P Q	2.83 0	7.85 1.57	2.28 T	8.24 2.23	2.33 .01	1.16 0	3.79 T	2.89 .02	4.85 .11	2.26 0	2.77 T	8.12 .99	49.37 4.93
1946 P Q	9.28 3.66	4.83 .52	5.47 .52	4.90 .65	5.16 .15	4.11 .14	2.91 .02	1.50 0	2.73 0	4.76 .03	2.04 0	1.11 0	48.80 5.69
1947 P Q	9.05 2.13	1.99 T	5.78 .28	4.88 .25	3.18 0	4.50 0	1.30 0	3.15 T	1.53 0	4.26 0	8.30 .10	4.66 0	52.58 2.76
1948 P Q	4.23 T	7.63 2.32	9.86 1.19	1.54 .11	4.59 T	3.33 T	4.51 T	3.69 T	3.58 T	1.18 0	15.61 6.80	4.21 .02	63.96 10.44
1949 P Q	4.21 .49	6.05 .23	2.64 T	8.07 1.52	3.66 T	2.29 0	3.60 0	6.16 T	3.05 0	3.58 T	1.24 0	2.86 T	47.41 2.24
1950 P Q	2.21 0	2.32 0	5.09 .01	.51 0	6.47 T	3.37 T	5.39 T	1.17 0	2.26 0	7.75 .85	.39 0	4.14 .01	41.07 .87
1951 P Q	1.95 0	2.05 0	5.87 .01	5.12 .08	.58 0	4.30 T	7.34 .01	.95 0	3.05 T	1.88 0	2.16 T	6.69 .47	41.94 .57
1952 P Q	3.01 T	4.30 T	11.29 2.13	3.00 T	2.88 .01	1.97 0	1.84 T	6.13 .01	1.04 0	1.02 0	1.77 0	4.65 0	42.90 2.15
1953 P Q	6.75 .11	5.66 .01	4.38 0	4.23 0	3.55 .01	2.70 0	1.98 0	1.83 0	5.18 0	.30 0	1.35 0	9.08 .44	46.99 .57
1954 P Q	2.94 .01	1.58 T	2.95 T	1.34 T	3.42 T	2.90 T	7.83 .04	2.04 0	1.46 0	.12 0	4.37 T	2.63 T	33.58 .05
1955 P Q  P Q  P Q	5.30 .02	4.46 .23	2.09 .01	2.63 .01	4.83 .12	1.87 T	4.27 T	3.74 T	1.17 0	1.73 0	2.61 0	1.30 0	36.00 .39
* Av. P * Av. Q	4.61 .67	4.20 .45	5.80 .66	3.82 .53	3.39 .13	3.24 .12	4.48 .38	3.89 .49	2.59 .03	2.36 .08	3.31 .44	4.64 .33	46.33 4.31
Normal P**	4.67	4.83	5.20	3.76	3.60	3.91	5.00	4.51	3.26	2.93	2.81	4.53	49.01

**Notes:** \* Does not include part year for 1939. \*\* 1885-1955 71-yr. av. precipitation (1885-1936 Athens U.S.W.B., 1937-1955 So. Pied. Cons. Exp. Sta.) Quality of records: P-Ex., Q-good.



LOCATION: Guilford Co., N. C.;  $3\frac{1}{2}$  mi. N. E. High Point; Deep River, Cape Fear River.

AREA: 21,100 ac. (33 sq. mi.) prior to 1937 then 32.1 sq. mi. SHAPE: Roughly a trapezoid with parallel sides - 6.11 mi. and 11.02 mi., other sides - 5.33 mi. and 4.37 mi.

SLOPES: 9% is in 0-3% class; 52% in 3-7%; 30% in 7-12%; 9% in 12%+. Aspect S-SE.

SOILS: Appling, Cecil and Durham sandy soils - 27%, Cecil and Davidson clay loams 19%, surface and internal drainage - rapid; Iredell and Mecklenburg - 8%, surface and internal drainage - slow; Helena and Wilkes soils - 38%, medium to rapid surface drainage, slow internal drainage; flood plain soils - 8%.

EROSION: 1 - 24%; 2 - 64%; 3 - 7%; 4 - 5%.

LAND CAPABILITY: II-38%; III-26%; IV-19%; VI-6%; VII-11%.

SURFACE DRAINAGE: Length of principal waterway - 9.7 mi.

CHARACTER OF FLOW: Perennial, continuous.

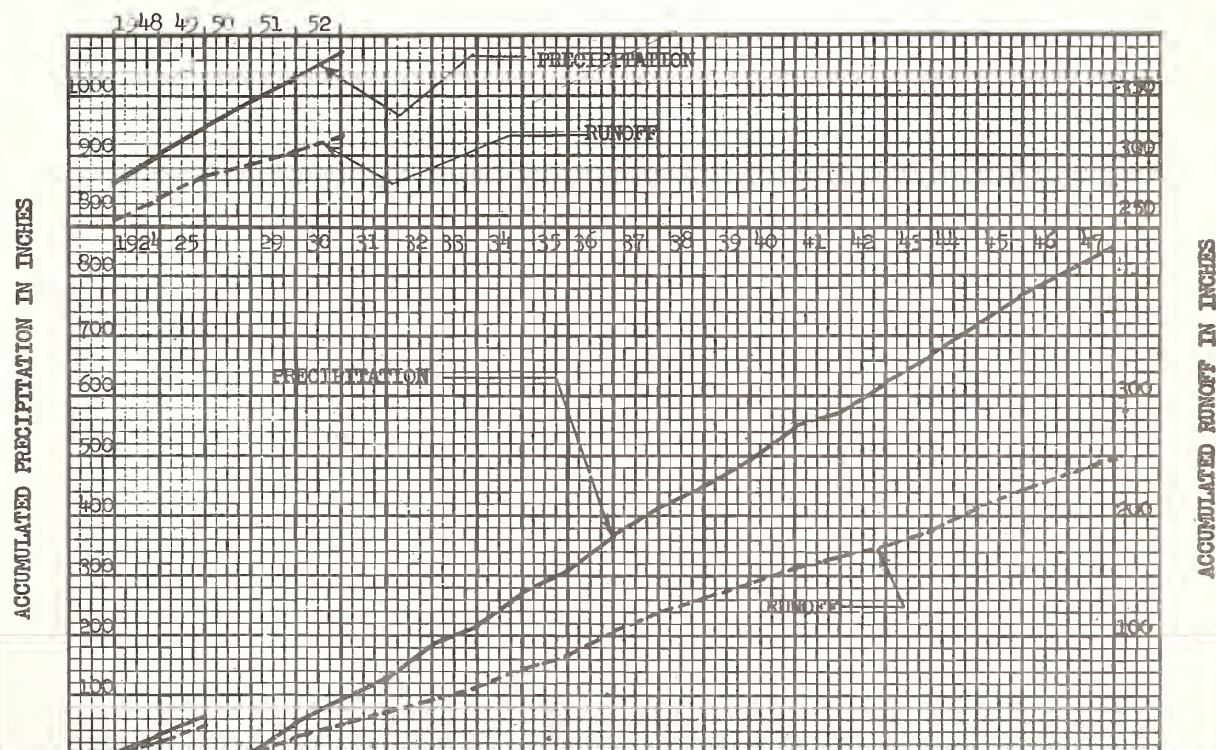
INSTRUMENTATION: Runoff - current meter rated section prior to 1937, then a modified Parshall flume, recording gage; precipitation - (see notes on sheet 11.1-2) - total of 2 to 7 gages in operation, consisting of various combinations of standard and recording units.

WATERSHED CONDITIONS:

Cropland - 36%; idle land - 9%; pasture - 8%; woodland - 46%; farmyards and urban areas - 1%. (Note - information taken from 1935 survey as reported in USDA-SCS-TP 48.)

GENERALLY REPRESENTS: Areas within the Piedmont Plateau Problem area. Most applicable to that portion of the problem area lying in Virginia and the northern half of North Carolina.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of U.S.D.A., U.S.G.S., and North Carolina Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) High Point, N. C. West Fork Deep River**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1923 P							h5.13	1.10	2.10	1.68	1.99	1.90	13.90
Q							1.31	.46	.56	.55	.89	1.07	4.84
1924 P	2.67	3.58	2.68	5.33	3.74	2.65	2.66	3.28	6.76	.65	.93	4.13	39.06
Q	1.40	1.28	1.37	1.98	1.67	.74	1.79	1.11	2.00	.62	.57	1.57	16.10
1925 P	5.29	1.42	2.75	1.66	2.29	1.37	.63	2.97	.89	2.90	1.63	1.48	25.28
Q	3.94	2.35	1.34	.58	1.22	.41	.20	.86	.26	.50	.44	.67	12.77
1926 P	4.78	3.47	3.80	2.68	1.90	3.25	4.05	3.22	.97				28.12
Q	2.63	2.37	1.35	1.03	.39	.29	.82	.39	.15				9.42
1928 P								9.57	8.63	1.05	.70	.72	20.67
Q								2.17	3.48	.62	.50	.46	7.23
1929 P	1.47	7.00	4.94	4.74	3.85	5.74	3.11	3.30	2.97	5.34	4.63	3.15	50.24
Q	.61	2.94	2.68	1.89	.90	.90	.81	.74	.31	2.63	1.37	1.20	16.98
1930 P	4.45	1.71	2.26	1.31	3.90	3.89	4.67	1.73	2.96	1.83	4.10	4.23	37.04
Q	1.20	1.30	.80	.71	.87	.81	.22	.19	.20	.15	.42	1.36	8.23
1931 P	1.69	1.53	3.51	4.40	5.56	1.29	6.01	8.35	.78	.88	.62	5.74	40.36
Q	.91	.40	1.03	2.15	2.04	.33	.88	1.75	.22	.12	.17	.61	10.61
1932 P	6.00	3.53	5.42	1.75	2.56	6.73	3.86	1.68	3.68	7.33	4.39	6.91	53.84
Q	1.73	1.08	2.38	.67	.52	.68	.28	.13	.10	1.80	1.05	2.90	13.32
1933 P	2.66	4.04	2.56	3.25	3.81	1.29	4.68	7.38	.81	1.15	1.82	2.86	36.31
Q	1.44	1.52	1.09	1.03	.54	.30	.31	1.52	.20	.14	.20	.30	8.59
1934 P	2.21	5.20	6.20	3.78	4.85	3.28	7.92	h3.10	w8.20	1.03	4.18	3.08	53.03
Q	.38	1.49	2.38	1.73	.67	.75	1.58	.31	1.86	.39	.53	1.11	13.18
1935 P	1.61	2.48	6.22	4.10	4.55	2.05	6.03	2.39	3.97	1.44	3.95	.01	38.80
Q	1.22	1.02	2.39	2.29	1.29	.45	.76	.20	.34	.19	.79	.44	11.38
1936 P	8.74	4.77	5.23	6.42	.24	3.63	7.86	2.78	6.40	3.29	1.56	5.45	56.37
Q	5.45	3.12	2.35	4.10	.39	.34	.96	.57	.96	1.56	.41	1.72	21.93
1937 P	8.40	2.89	1.63	4.63	2.90	4.20	3.59	6.31	2.36	5.08	2.16	1.51	45.66
Q	5.50	1.49	1.06	1.85	1.06	.55	.63	.74	.70	.96	.65	.64	15.83
1938 P	3.17	1.30	2.31	2.39	4.56	4.79	8.01	1.76	1.57	1.04	5.86	3.68	40.44
Q	1.19	.66	1.11	.59	.85	.84	2.31	.35	.19	.19	1.09	1.27	10.64
1939 P	2.86	5.88	3.85	2.71	2.60	3.44	5.59	9.75	.30	2.14	2.16	2.98	44.26
Q	1.15	3.34	1.72	.82	.64	.49	.72	3.14	.25	.30	.34	.64	13.55
1940 P	2.69	2.43	2.42	3.33	7.57	3.06	5.27	7.42	w2.70	h1.35	6.17	3.91	48.32
Q	.78	1.58	.89	1.05	2.56	.59	.75	2.82	.50	.26	1.67	.92	14.37
1941 P	1.90	1.03	3.78	3.23	1.53	3.49	h9.96	g1.56	1.76	.65	.53	3.28	32.70
Q	1.09	.51	1.18	1.02	.35	.84	1.72	.20	.14	.11	.15	.29	7.60
1942 P	1.79	3.70	4.13	1.06	6.09	8.95	4.28	g4.14	h2.68	3.35	1.06	3.70	44.93
Q	.34	1.28	2.78	.39	.76	1.67	.87	.90	.29	.61	.38	1.13	11.40
1943 P	3.89	2.16	4.15	2.47	4.47	3.00	6.65	4.95	2.42	.72	1.23	3.00	39.11
Q	2.45	1.87	2.26	1.48	.66	.68	1.15	.36	.23	.20	.26	.48	12.08
Av. P													
Av. Q													
Normal P													

**Notes:** \*\*Does not include the part year amounts for 1923, 26, 28, 53. Precipitation data taken from W. B. records as follows: h - High Point, July 1923 to Sept. 1934, Oct. 1940 to July 1941, Sept. 1942 to Sept. 1953; except August 1950 is (a) the average of precipitation recorded for the Lexington and Randleman, N. C., W. B. Stations; g - Greensboro; (continued on Sheet 11.1-2a)



MONTHLY PRECIPITATION AND RUNOFF (Inches) High Point, N. C. West Fork Deep River

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1944	P	3.27	5.15	9.44	5.98	2.33	1.65	9.77	2.77	8.73	2.26	3.26	1.97	56.58
	Q	1.55	2.27	3.80	2.98	.59	.24	.89	.23	1.15	.64	1.00	.99	16.33
1945	P	1.75	4.89	2.02	3.50	1.96	.22	8.51	1.59	10.97	1.81	2.07	5.75	45.04
	Q	1.21	2.49	.95	.53	.85	.30	.56	.20	3.64	.41	.76	3.10	15.00
1946	P	2.97	3.50	1.67	3.57	4.66	3.92	4.55	5.81	1.84	2.17	1.87	2.01	38.54
	Q	2.00	3.08	1.01	.78	1.53	.53	.93	.86	.40	.41	.57	.59	12.69
1947	P	5.65	1.32	2.03	3.49	2.33	3.18	3.63	2.93	13.35	2.72	5.78	1.31	47.72
	Q	2.80	.46	1.43	1.06	.42	.27	.44	.28	5.22	.68	1.98	.77	15.81
1948	P	3.54	2.63	4.94	2.98	4.89	5.56	3.02	6.87	2.27	2.01	9.16	4.08	51.95
	Q	1.14	3.01	1.88	1.91	.76	.49	.31	1.02	.31	.43	2.64	2.16	16.06
1949	P	3.24	3.44	3.13	3.89	4.04	1.44	8.31	10.57	2.17	5.83	1.46	1.42	48.94
	Q	1.53	1.83	1.20	1.18	1.33	.36	2.54	3.33	.58	2.27	1.22	.70	18.07
1950	P	1.97	1.67	3.44	1.85	6.32	4.13	4.90	2.82	2.69	2.81	2.28	2.45	37.33
	Q	.77	.84	1.31	.63	1.60	.65	.62	.37	.37	.45	.45	.77	8.83
1951	P	1.03	2.19	2.91	4.41	.32	6.58	3.02	2.93	3.07	.40	3.10	6.06	36.02
	Q	.58	.89	.98	1.59	.36	.83	.47	.56	.21	.14	.31	1.37	8.29
1952	P	3.87	3.50	8.44	3.23	4.37	2.25	2.65	9.82	1.54	1.41	3.10	4.86	49.04
	Q	1.65	1.57	4.95	1.11	.77	.34	.47	1.84	1.24	.38	.63	1.80	16.75
1953	P	4.10	6.30	4.44	2.72	1.17	8.76	1.27	2.96	3.52				35.24
	Q	2.42	3.36	2.70	1.00	.46	1.58	.26	.17	.25				12.20
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**Av. P		3.42	3.19	3.93	3.44	3.70	3.53	5.35	4.58	3.76	2.37	3.04	3.42	43.73
**Av. Q		1.69	1.68	1.78	1.39	.97	.59	.89	.95	.84	.64	.77	1.13	13.32
Normal P		3.40	3.60	4.30	3.60	3.80	4.40	5.00	4.40	3.00	2.50	2.20	3.60	43.80

Notes: w - precipitation data for period of Sept. 1934 to Oct. 1940 is the average of recorded values for rain gages in operation in the watershed. Normal P based on 34 yr. record (1921-40, 1942-55) at High Point, N. C. r - part of runoff for Feb. 1948 is the result of a heavy snowfall on Jan. 31. Quality of records; P - good, Q - poor prior to 1928, then good.

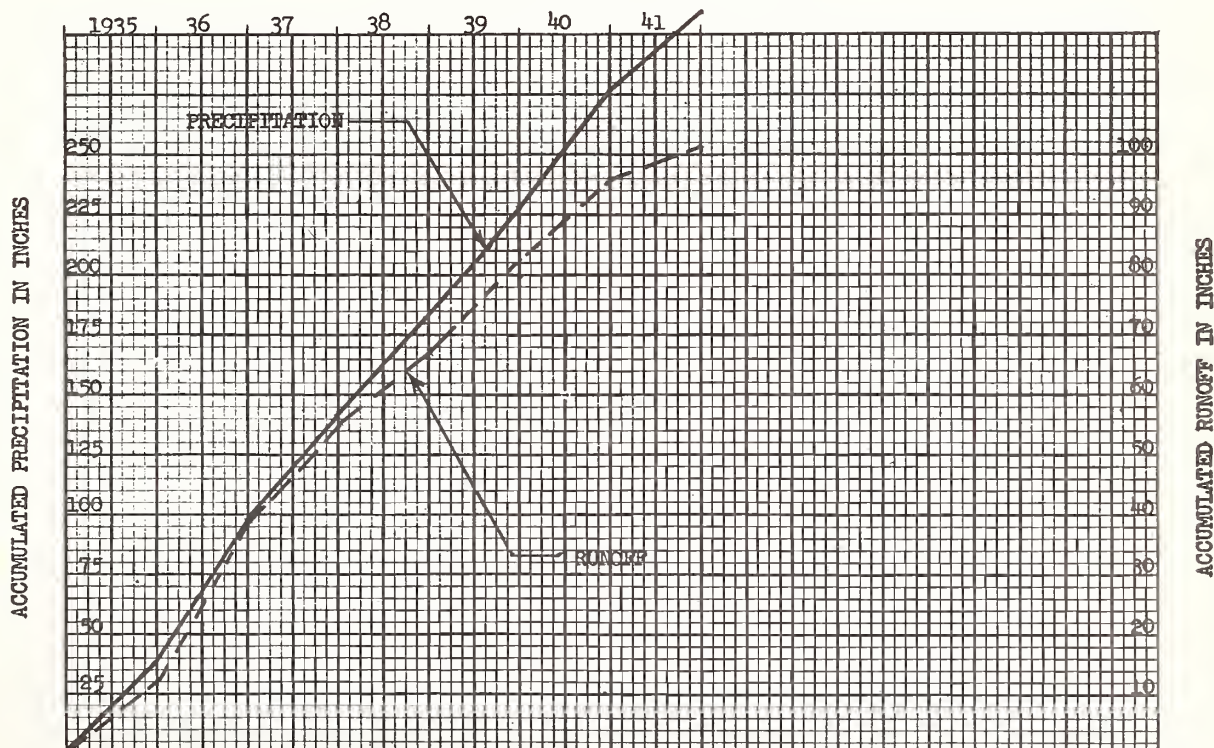




3-56

HIGH POINT, N. C. Muddy Creek WatershedLOCATION: Randolph, Co., N. C.; 7 mi. S. E. of Archdale; Deep River, Cape Fear River.AREA: 10,300 ac. (16.2 sq. mi.) SHAPE: Roughly an ellipse, major axis - 7.6 mi., minor axis - 2.6 mi.SLOPES: 4% in the 0-3% class; 58% in 3-7%; 31% in 7-12%; 7% in 12% and more. Aspect E-SE.SOILS: Helena and Wilkes soils - 87%, medium to rapid surface drainage, slow internal drainage; Appling, Cecil and Durham sandy soils - 2%; Cecil clay loam - 2%, surface and internal drainage - rapid; Georgeville and Herndon soils - 1%; Iredell and Mecklenburg soils - 1%; flood plain soils - 7%.EROSION: 1 - 48%; 2 - 50%; 3 - 2%.LAND CAPABILITY: II-29%; III-29%; IV-27%; VI-10%; VII-5%.SURFACE DRAINAGE: Length of principal waterway - 8.6 mi.CHARACTER OF FLOW: Perennial, continuous.INSTRUMENTATION: Runoff - modified Parshall flume, recording gage; precipitation - total of 2 to 6 gages in operation, consisting of various combinations of standard and recording gages.WATERSHED CONDITIONS: Cropland - 41%; woodland - 41%; pasture - 10%; idle land - 8%. (Note - information taken from 1935 survey as reported in USDA-SCS-TP 48.)GENERALLY REPRESENTS: Areas within the Piedmont Plateau problem area. Most applicable to that portion of the problem area lying in Virginia and the northern half of North Carolina.

ACCUMULATED PRECIPITATION AND RUNOFF



MONTHLY PRECIPITATION AND RUNOFF (Inches) High Point, N. C., Muddy Creek Watershed

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934	P									8.71	1.86	4.48	2.88	17.93
	Q									.97	.41	.69	1.86	3.93
1935	P	1.30	2.92	6.67	3.90	4.13	1.50	5.08	1.69	4.50	1.52	3.14	2.62	38.97
	Q	1.78	1.45	3.65	3.05	1.19	.22	.42	.03	.12	.04	.28	.26	12.49
1936	P	7.18	3.76	5.13	5.84	.13	4.81	7.07	5.79	5.77	6.04	1.81	5.38	58.71
	Q	5.88	4.00	3.10	4.92	.13	.30	.42	1.87	.88	2.97	.42	2.25	27.14
1937	P	8.87	2.96	1.37	5.05	3.18	2.53	3.51	6.90	1.90	3.50	2.04	1.72	43.53
	Q	6.78	1.87	1.28	1.93	1.06	.11	.19	.58	.22	.81	.53	.62	15.98
1938	P	2.84	1.03	2.42	2.39	2.42	7.19	7.79	4.30	2.02	.98	4.39	4.02	41.79
	Q	1.44	.57	1.00	.76	.14	1.81	2.63	.68	.07	.05	.72	1.68	11.55
1939	P	3.44	7.26	4.75	2.95	2.22	2.94	8.42	7.63	.07	2.51	1.68	2.92	46.79
	Q	1.75	5.72	2.69	.94	.56	.15	.86	1.42	.10	.13	.14	.44	14.90
1940	P	*2.82	2.50	2.44	2.85	6.70	3.94	4.40	8.00	1.20	h1.35	h6.17	h3.91	46.28
	Q	.90	2.23	1.29	1.10	2.17	1.05	.28	2.13	.11	.05	1.68	.97	13.96
1941	P	h1.90	h1.03	h3.78	h3.23	h1.53	h3.49	h9.96	h1.56	h1.76	h .65	h .53	h3.28	h32.70
	Q	1.34	.55	1.30	1.45	.18	.11	.80	.04	.05	0	.01	.11	5.94
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**Notes:** \*Partially estimated. \*\*Does not include the part year amounts for 1934. h - precipitation taken from W. B. report as given for High Point, N. C. Other precipitation figures are the average of rain gages in operation during period. Normal P based on 34 yr. record (1921-40, 1942-55) at High Point, N. C.. r - part of the Jan. 1935 runoff resulted from the thawing of frozen rain occurring Dec. 31.



LOCATION: Randolph Co., N. C.; 2 mi. S. of Trinity; Pee Dee River.

AREA: 7230 ac. (11.3 sq. mi.)      SHAPE: Roughly triangular, sides - 4 mi., 4 mi., and 5.7 mi.

SLOPES: 5% in the 0-2% class; 50% in 2-10%; 19% in 10-15%; 26% in 15% and more. Aspect S-SE

SOILS: Cecil, Davidson, Georgeville, and Tirzah soils - 13%; Herndon and Vance soils - 17%; medium to rapid surface and internal drainage; Helena and Wilkes soils - 48%; Enon, Efland, Iredell, Mecklenburg, and Orange soils - 14%; surface drainage - medium to rapid, internal drainage - slow to medium; Alluvial and Starr soils - 8%; slow to medium surface and internal drainage.

EROSION: 1 - 23%; 2 - 60%; 3 - 8%; 4 - 2%; + - 7%.

LAND CAPABILITY: II-30%; III-25%; IV-22%; VI-15%; VII-8%.

SURFACE DRAINAGE: Length of principal waterway - 4.4 mi.

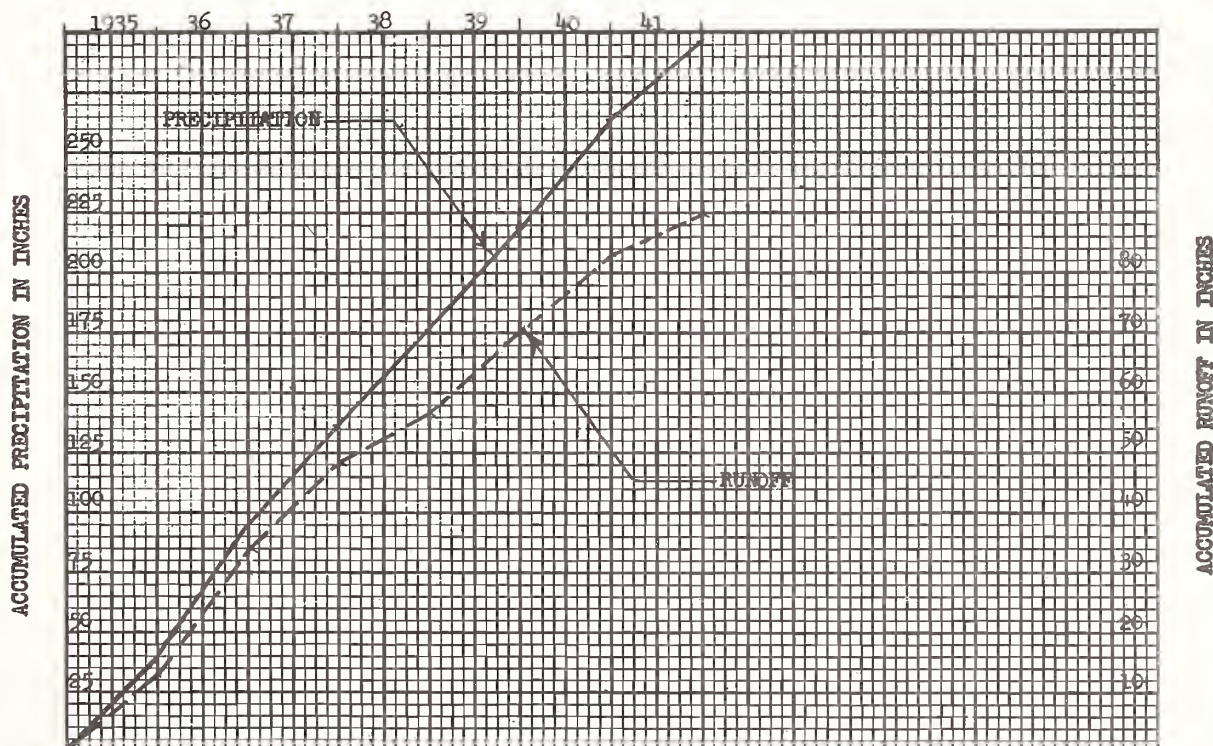
CHARACTER OF FLOW: Perennial, continuous.

INSTRUMENTATION: Runoff - modified Parshall flume, recording gage; precipitation - total of 2 to 5 gages in operation, consisting of various combinations of standard and recording gages.

WATERSHED CONDITIONS: Cropland - 42%; idle land - 8%; pasture - 4%; woodland - 44%; farmyards and urban areas - 2%. (Note - information taken from 1935 survey as reported in USDA-SCS-TP 48.)

GENERALLY REPRESENTS: Areas within the Piedmont Plateau problem area. Most applicable to that portion of the problem area lying in Virginia and the northern half of North Carolina.

ACCUMULATED PRECIPITATION AND RUNOFF



High Point, N. C., Uharie (Uwharrie)  
River Watershed

Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1934. h - precipitation taken from W. B. report as given for High Point, N. C. Other precipitation figures are the average of rain gages in operation during period. Normal P based on 34 yr. record (1921-40, 1942-55) at High Point, N. C. Quality of Records: P - good, Q - good.



10-55

STATESVILLE, N. C. Watershed C 8

LOCATION: Iredell County, N. C.; 10 mi. S. W. of Statesville, just off of routes US 64 and US 70; Catawba River.

AREA: 5.12 ac.

SHAPE: Roughly a triangle; sides - 848, 717, and 619 ft.

SLOPES: 20% is in 0-3% class; 4% in 3 to 7%; 49% in 7 to 12%; and 27% in 12% and over. Aspect S-SE

SOILS: Parent material - granites, gneiss, gneissoid schists, and schists. Cecil clay loam - 77%; Cecil sandy loam - 23%. Top soil thickness - 3 to 5 in. for 79%, 15-20 in. for 21%, permeability moderately rapid; subsoil, deep, permeability - moderate.

EROSION: 2 - 6%; 3 - 73%; + - 21%.

LAND CAPABILITY: II - 20%; III - 53%; IV - 27%.

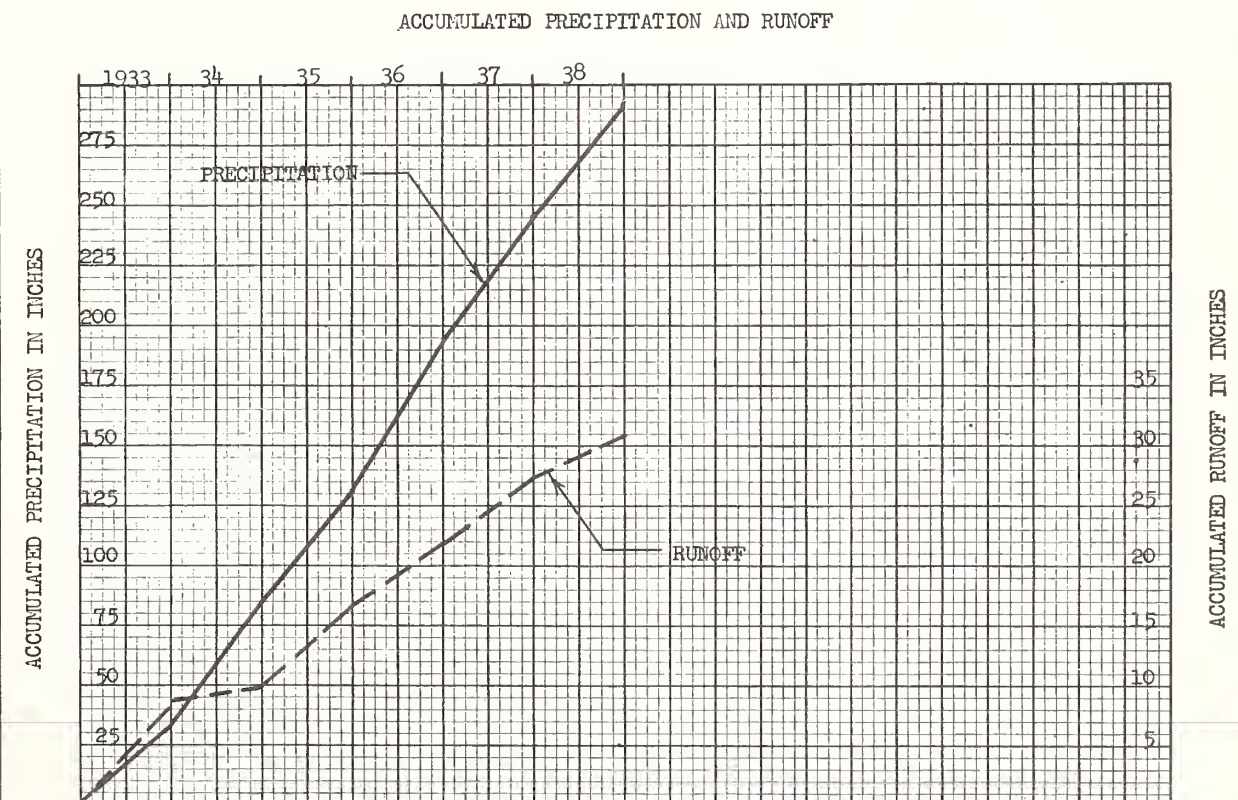
SURFACE DRAINAGE: Good; length of principal waterway - 800 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. Marshall flume, recording gage; precipitation - recording gage about 1000 ft. from center of field, 600 ft. outside watershed.

WATERSHED CONDITIONS: All cultivated; 1933 - spring oats and lespedeza; 1934 - lespedeza; 1935 - cotton, winter rye and vetch; 1936 - soybeans followed with fall oats; 1937 and 38 - lespedeza.

GENERALLY REPRESENTS: Cultivated areas of Piedmont Plateau, most applicable to the area which extends from Central Virginia to the South Carolina-Georgia boundary.



Cooperative Research Project of U.S.D.A. and N. C. Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches)      Statesville, N. C. Watershed C-8**

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1933	P Q	2.01 .02	3.49 .02	3.80 *1.74	2.34 .56	4.57 1.35	1.18 .03	4.28 1.19	5.84 2.79	2.22 .69	1.10 0	1.25 T	2.70 .03	34.78 8.42
1934	P Q	2.00 .01	4.95 * .28	6.85 * .57	3.28 .07	3.63 T	3.32 .10	4.35 .08	5.58 .08	4.72 .08	4.80 .12	4.54 .04	2.82 .01	50.84 1.44
1935	P Q	2.77 0	3.09 .03	7.71 *1.81	2.53 .35	2.42 T	.66 0	10.74 4.36	4.55 T	2.87 T	2.06 T	4.06 .09	2.81 T	46.27 6.64
1936	P Q	9.91 1.55	4.62 * .65	9.15 .53	5.59 1.28	.42 0	3.83 .02	4.06 .01	8.03 .34	4.09 .16	5.35 .31	1.24 T	6.86 .60	63.15 5.45
1937	P Q	10.58 2.18	2.75 .04	1.34 0	4.45 .05	2.86 .06	2.99 .04	4.25 1.22	7.33 .63	1.99 0	8.12 1.21	2.28 .02	2.21 .02	51.15 5.47
1938	P Q	2.72 .01	1.27 T	3.67 .02	2.80 .01	4.89 .01	9.16 1.79	9.93 1.02	2.40 .07	1.18 T	.92 0	5.44 .12	3.46 .06	47.84 3.11
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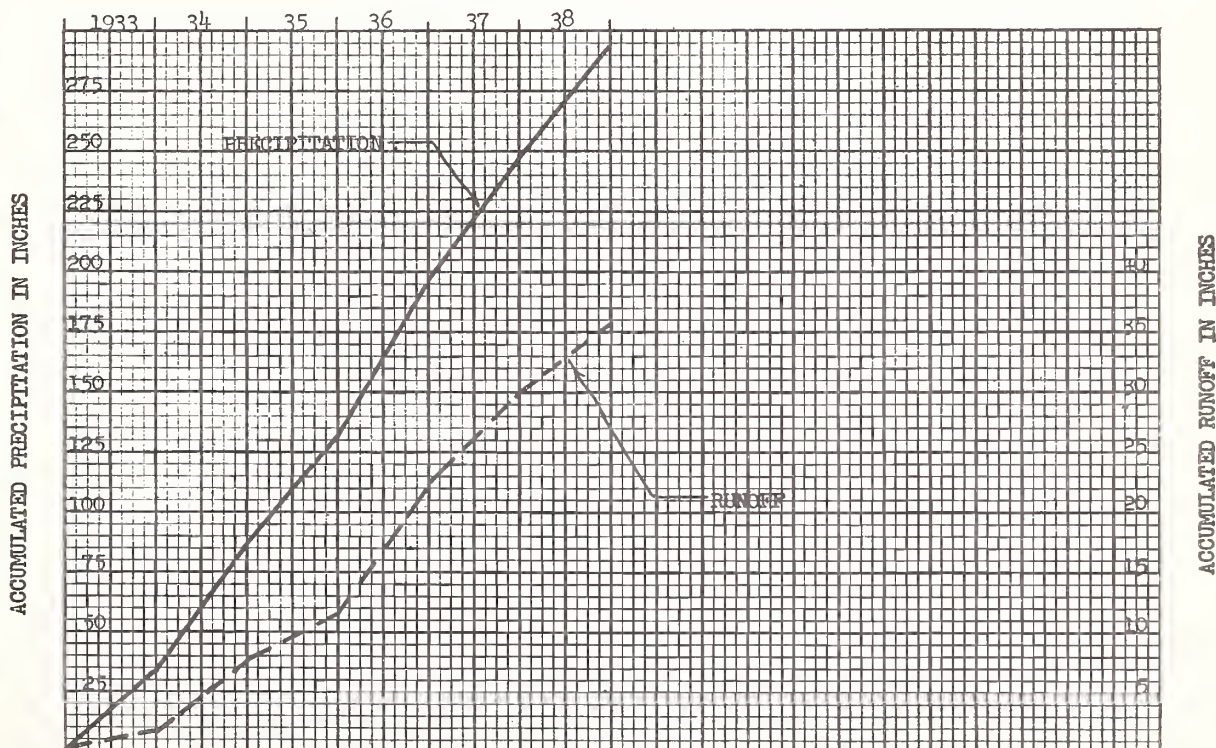
**Notes:** \* Partially estimated. T = Trace runoff. Normal P based on 54 year record (1897 - 1951)  
1 mi. W. of Statesville, North Carolina. Quality of records; P - good, Q - good.

10-55

STATESVILLE, N. C. Watershed W 23

LOCATION: Iredell County, N. C.; 10 mi. S. W. of Statesville; Catawba RiverAREA: 6.00 ac.SHAPE: Roughly a quadrangle; side - 335 ft., angle 116°; side - 540 ft., angle 68°; side 700 ft., angle 75°; side - 520 ft.SLOPES: 2% is in 0-37% class; 43% in 7-12%; 55% in 12% and more. Aspect E-SE.SOILS: Parent material - granite, gneiss, and schist. Texture - moderately coarse. Topsoil - thickness - 8 to 10 in.; permeability - moderate to rapid; Appling sandy loam - 93%; Seneca sandy loam - 3%; Worsham sandy loam - 2%; undifferentiated - 2%.EROSION: 1 - 34%; 2 - 62%; + - 4%.LAND CAPABILITY: III - 42%; IV - 32%; VI - 20%; VII - 6%.SURFACE DRAINAGE: Good; length of principal waterway - 790 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - Parshall flume, recording gage; precipitation - recording gage about 1050 ft. from center of watershed.WATERSHED CONDITIONS: All heavily wooded; 55 yr. old stand of short leaf pine and mixed hardwood; unburned and ungrazed. Cutting operation during Oct. 1937-March 1939 removed all trees down to an 8 or 9 in. stump, leaving a conglomeration of tops, broken saplings, etc.GENERALLY REPRESENTS: Unburned and ungrazed wooded areas of Piedmont Plateau problem area. Most applicable to the area which extends from Central Virginia to the South Carolina-Georgia boundary.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Statesville, N. C. Watershed W-23**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1933 P	2.01	3.49	3.80	2.34	4.57	1.18	4.28	5.84	2.22	1.10	1.25	2.70	34.78
Q	.03	.71	.39	.04	.10	0	.05	.14	.06	0	T	.06	1.58
1934 P	2.00	4.95	6.85	3.28	3.63	3.32	4.35	5.58	4.72	4.80	4.54	2.82	50.84
Q	.05	T	3.73	.78	.13	.04	.05	.04	.11	.25	.52	.18	5.88
1935 P	2.77	3.09	7.71	2.53	2.42	.66	10.74	4.55	2.87	2.06	4.06	2.81	46.27
Q	.51	.58	1.47	.75	.06	0	.43	0	.03	0	.07	.02	3.92
1936 P	9.91	4.62	9.15	5.59	.42	3.83	4.06	8.03	4.09	5.35	1.24	6.86	63.15
Q	4.10	*.42	1.63	1.54	0	.04	.05	.77	.09	.70	.03	1.61	10.98
1937 P	10.58	2.75	1.34	4.45	2.86	2.99	4.25	7.33	1.99	8.12	2.28	2.21	51.15
Q	4.13	1.03	.29	*.63	.05	.04	.04	.12	0	.97	.03	.01	7.34
1938 P	2.72	1.27	3.67	2.80	4.89	9.16	9.93	2.40	1.18	.92	5.44	3.46	47.84
Q	.01	T	.16	.06	.01	2.39	2.32	.04	.04	.09	.23	.23	5.58
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Av. P	5.00	3.36	5.42	3.50	3.13	3.52	6.27	5.62	2.84	3.73	3.14	3.48	49.01
Av. Q	1.47	.46	1.28	.63	.06	.42	.49	.19	.06	.33	.14	.35	5.88
Normal P	3.70	4.00	4.40	3.40	3.70	4.20	5.10	5.90	3.30	3.50	2.40	4.50	48.10

Notes: \* Partially estimated. T = Trace runoff. Normal P based on 54 year W. B. records (1897 - 1951) 1 mi. W. Statesville, North Carolina. Quality of records; P - good, Q - good.



10-55

BLACKSBURG, VA. Watershed W II

LOCATION: Montgomery Co., Va.; 1.1 mi. S. W. of Blacksburg, Va.; Stroubles Cr., New River.

AREA: 5.44 ac.

SHAPE: Roughly rectangular, 280 ft. wide by 850 ft. long.

SLOPES: 32% is in 1-5% class; 42% in 5-10%; 26% in 10% and over. Aspect N-NW.

SOILS: Parent material - limestone and shales; medium textured topsoil, moderately heavy subsoil  
Heavy silt loam - 6%; topsoil - 43 in., impeding stratum at 43 in. Dunmore silt loam - 94%;  
topsoil - 2 to 8 in., impeding stratum at 17-20 in.

EROSION: 1 - 41%; 2 - 59%.

LAND CAPABILITY: II - 32%; III - 68%.

SURFACE DRAINAGE: Good; principal waterway - 920 ft.

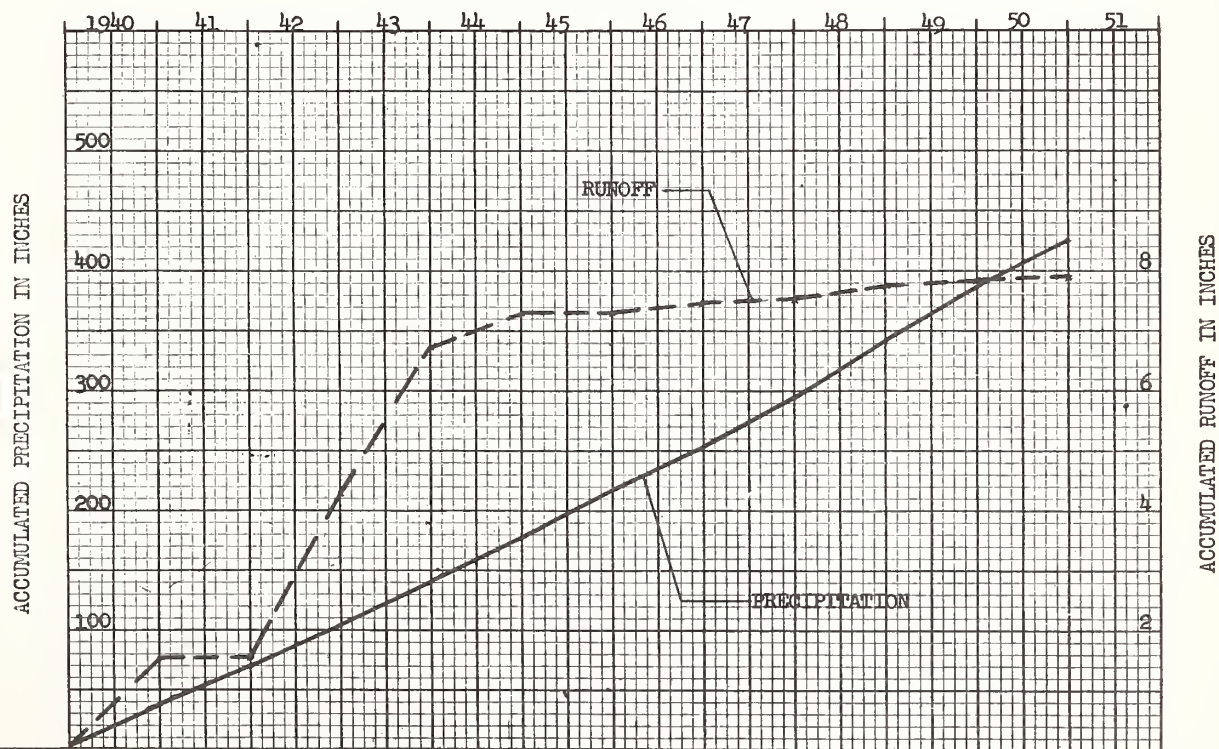
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, 6 hr. chart; precipitation - recording gage,  
6 hr. chart.

WATERSHED CONDITIONS: All cultivated; prior to 1943 - straight row cultivation with a rotation of  
corn, wheat, and clover; thereafter - contoured strips with a rotation of corn, small grain and  
clover.

GENERALLY REPRESENTS: Cultivated areas of the Appalachian Valleys and Ridges problem area.

ACCUMULATED PRECIPITATION AND RUNOFF



Joint Research Project of U.S.D.A., and Virginia Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Blacksburg, Va. Watershed W II**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q					1.10 0	4.84 .53	3.30 .23	5.49 1.00	1.53 .15	.51 .06	1.04 0	1.69 0	19.50 1.97
1940 P Q	1.19 0	1.93 .01	2.34 T	4.09 .09	6.49 .62	3.59 .23	3.78 .02	9.69 .57	.59 0	2.34 0	1.80 .01	1.93 0	39.76 1.55
1941 P Q	1.86 0	.82 0	1.87 0	2.59 0	.32 0	5.75 0	5.75 0	2.39 0	1.67 0	1.41 0	.99 0	3.01 0	28.43 0
1942 P Q	1.78 0	1.39 0	2.34 0	.57 0	6.41 .85	6.11 1.50	1.81 .01	5.34 .10	3.40 .04	3.24 .04	1.20 .01	.94 T	34.53 2.55
1943 P Q	2.66 T	1.73 0	3.87 0	2.67 T	4.27 .06	6.20 .79	6.81 1.45	3.16 .31	1.21 0	1.90 0	1.31 0	2.45 .03	38.24 2.64
1944 P Q	1.84 0	6.46 0	4.19 0	2.28 0	4.35 .45	2.98 .05	2.44 0	.80 0	4.96 0	3.02 0	2.11 0	1.76 0	37.19 .50
1945 P Q	2.67 0	4.08 0	2.25 0	2.59 0	4.52 0	1.82 0	4.65 .01	2.43 .01	6.42 T	1.40 0	3.00 0	3.53 0	39.36 .02
1946 P Q	3.42 0	2.19 0	2.61 .01	2.92 0	3.97 0	4.46 .05	4.70 .12	1.78 0	2.13 0	1.59 0	1.57 0	2.46 T	33.80 .18
1947 P Q	5.33 0	1.27 0	2.51 .02	2.60 .01	3.36 T	5.18 .02	5.82 .06	3.72 .03	3.93 T	5.17 0	2.32 T	.61 0	41.82 .14
1948 P Q	2.55 0	2.35 .02	5.11 0	3.12 0	4.75 T	6.38 .05	4.74 .02	5.41 .08	2.33 0	2.09 0	4.57 0	5.60 0	49.00 .17
1949 P Q	3.87 T	2.33 0	2.32 0	6.04 0	3.70 0	5.65 0	7.10 .09	5.83 0	2.01 0	3.14 0	2.21 0	2.09 0	46.29 .09
1950 P Q	3.00 0	2.02 0	2.08 0	1.99 0	6.49 .04	3.36 T	6.25 .03	3.11 .01	1.99 T	.92 0	1.86 0	2.41 .01	35.48 .09
1951 P Q  P Q  P Q  P Q  P Q  P Q  P Q  P Q  P Q  P Q	1.09 .01	2.19 0	4.13 0										7.41 .01
** Av. P ** Av. Q	2.74 T	2.42 T	2.86 T	2.86 .01	4.42 .18	4.68 .24	4.90 .15	3.97 .10	2.79 T	2.38 T	2.08 T	2.44 T	38.54 .69
Normal P	2.99	2.86	3.32	3.10	4.64	4.24	5.03	3.92	2.89	2.84	2.27	3.00	41.10
<b>Notes:</b> ** Does not include the part year amounts for 1939 and 1951. Normal P based on 62 yr. W. B. record (1892 - 1954) at Blacksburg, Va. Quality of records; P - excellent, Q - excellent.													

10-55

BLACKSBURG, VA. Watershed W III

LOCATION: Montgomery Co., Va.; 1.2 mi. S. W. Blacksburg; Stroubles Cr., New River.

AREA: 19.3 ac.

SHAPE: Roughly a trapezoid, parallel sides - 1220 and 510 ft.  
one side perpendicular - 970 ft.

SLOPES: 38% is in 1-5% class; 15% in 5-10%; 47% in 10% and over. Aspect W-NW.

SOILS: Parent material - limestone and shales; medium textured topsoil, moderately heavy subsoil.  
Emery silt loam - 6%; topsoil - 10 in., impeding stratum at 43 in.; Dunmore silt loam - 90%, topsoil - 2 to 8 in., impeding stratum at 17-20 in.; Dunmore clay loam - 4%, topsoil - 1 to 5 in., impeding stratum at 7 to 11 in.

EROSION: 1 - 44%; 2 - 51%; 3 - 5%.

LAND CAPABILITY: II - 13%; III - 87%.

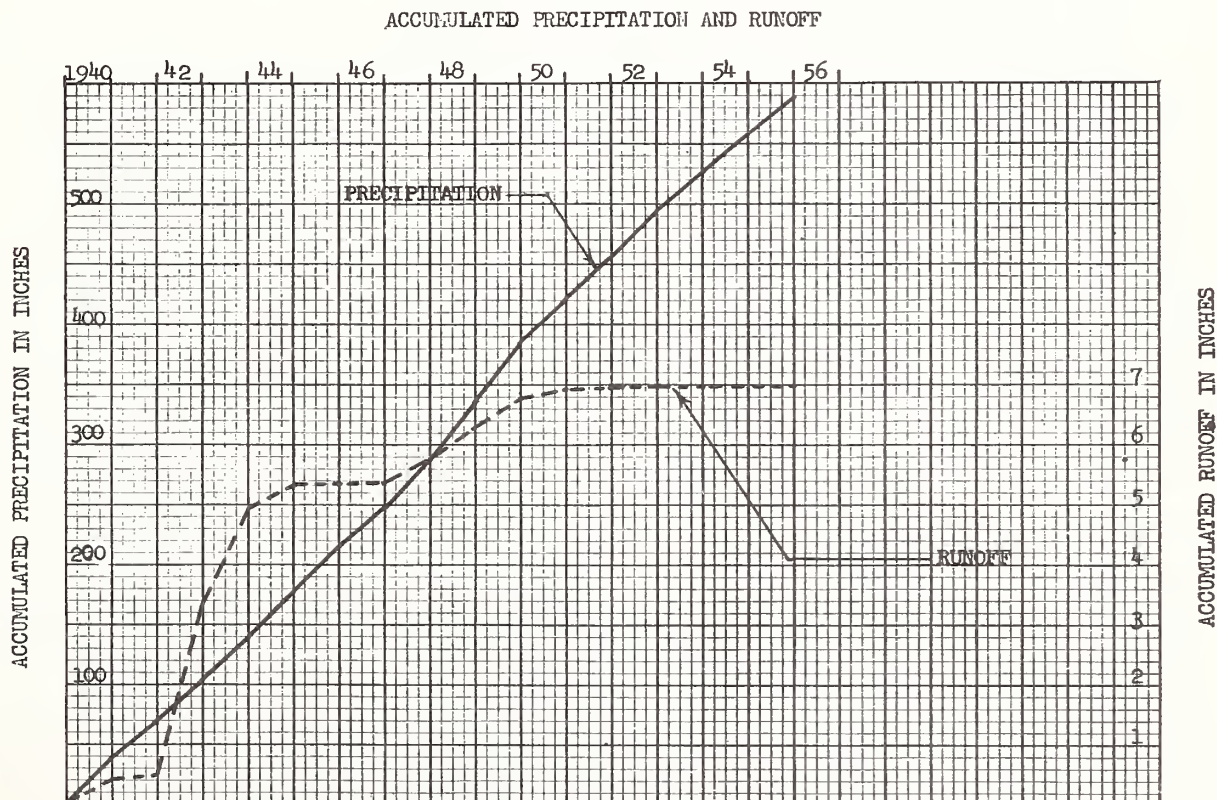
SURFACE DRAINAGE: Good; principal waterway - 1400 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - prior to May 1940 - 3 ft. H-type flume; after May, 1940 - 16 in. broad crested concrete weir with 2:1 side slopes; 6 hr. chart; precipitation - recording gage, 6 hr. chart.

WATERSHED CONDITIONS: Cultivated - 89%; prior to 1943 - straight row cultivation with a rotation of corn, wheat, and clover; thereafter - contoured strips with a rotation of corn, small grain and clover. Pasture - 9%, usually good cover. Woodland - 2%.

GENERALLY REPRESENTS: Cultivated areas of the Appalachian Valleys and Ridges problem area.



Joint Research Project of U.S.D.A. and Virginia Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Blacksburg, Va. Watershed W-III

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939	P Q					1.10 0	4.84 .31	3.30 .16	5.49 .86	1.53 .08	0.51 0	1.04 0	1.69 0	19.50 1.41
1940	P Q	1.19 0	1.93 0	2.34 0	4.09 .02	6.49 0	3.59 .03	3.78 T	9.69 .32	.59 T	2.34 T	1.80 .05	1.93 T	39.76 .42
1941	P Q	1.86 T	.82 T	1.87 .01	2.59 0	.32 0	5.75 .01	5.75 .01	2.39 T	1.67 T	1.41 0	.99 0	3.01 T	28.43 .03
1942	P Q	1.78 0	1.39 0	2.34 0	.57 0	6.41 .79	6.11 2.13	1.81 0	5.34 T	3.40 .01	3.24 T	1.20 0	.94 0	34.53 2.93
1943	P Q	2.66 0	1.73 T	2.98 T	2.40 T	4.36 .06	6.27 .47	6.74 .94	3.11 .11	1.21 T	1.94 0	1.00 0	2.45 .02	36.85 1.60
1944	P Q	1.74 .01	6.35 .06	4.16 T	1.66 T	4.24 .22	3.25 .03	2.17 T	1.28 0	3.91 T	2.62 .01	2.14 0	1.72 0	35.24 .33
1945	P Q	2.67 0	4.08 T	2.25 0	2.59 T	4.52 T	1.82 0	4.65 .01	2.43 T	6.42 T	1.40 0	3.00 0	3.53 0	39.36 .01
1946	P Q	3.42 0	2.19 0	2.61 T	2.92 T	3.97 T	4.46 .01	4.70 .03	1.78 T	2.13 T	1.59 T	1.57 0	2.46 0	33.80 .04
1947	P Q	5.33 T	1.27 0	2.51 T	2.60 T	3.36 T	5.18 .02	5.82 .12	3.72 .11	3.93 .03	5.17 .04	2.32 .01	.61 0	41.82 .33
1948	P Q	2.55 0	2.35 .08	5.11 .01	3.12 .03	4.75 .01	6.38 .11	4.74 .03	5.41 .22	2.33 T	2.09 .01	4.57 .02	5.60 .03	49.00 .55
1949	P Q	3.87 T	2.33 .01	2.32 T	6.04 .04	3.70 .03	5.65 .05	7.10 .30	5.83 .04	2.01 T	3.14 .05	2.21 .03	2.09 T	46.29 .55
1950	P Q	3.00 T	2.02 T	2.08 T	1.99 T	6.49 .09	3.36 .01	6.25 .03	3.11 T	1.99 T	.92 0	1.86 T	2.41 T	35.48 .13
1951	P Q	1.09 0	2.19 0	4.13 0	4.61 0	2.09 0	5.05 0	4.89 .02	2.09 0	2.44 0	.84 0	2.81 0	3.16 .01	35.39 .03
1952	P Q	4.47 .01	1.84 0	3.38 0	4.01 0	2.87 0	3.68 0	3.02 0	7.53 .01	1.27 0	.87 0	3.73 0	2.68 0	39.35 .02
1953	P Q	2.56 0	3.08 0	3.86 0	2.52 0	3.84 .01	4.27 0	1.65 0	2.29 0	1.40 0	.97 0	.50 0	3.28 0	30.22 .01
1954	P Q	4.73 0	1.26 0	2.93 0	1.74 0	3.14 0	1.34 0	4.13 0	2.79 0	1.33 0	4.29 0	1.65 0	3.23 0	32.56 0
1955	P Q	1.13 0	4.52 .01	6.92 T	2.23 0	1.18 0	3.72 T	1.62 T	3.43 T	.34 0	1.62 0	1.56 0	1.27 0	29.54 .01
	P Q													
	P Q													
	P Q													
	P Q													
**Av. P	2.75	2.46	3.24	2.86	3.86	4.37	4.30	3.89	2.27	2.15	2.06	2.52	36.73	
**Av. Q	T	.01	T	.01	.08	.18	.09	.05	T	.01	.01	T	.44	
Normal P	2.96	2.89	3.38	3.09	4.58	4.23	4.98	3.92	2.85	2.82	2.26	2.97	40.93	

**Notes:** \*\* Does not include part year amounts for 1939. T = Trace of runoff. Normal P based on 63 year record (1892 - 1955) at Blacksburg, Va. Quality of records; P - excellent, Q - excellent.

1-56

BLACKSBURG, VA.

Watershed W IV

LOCATION: Montgomery Co., Va.; 4.1 mi. W., 1 mi. S. of Blacksburg, near Prices Fork; Toms Creek, New River.

AREA: 3.49 ac.

SHAPE: Roughly a parallelogram; parallel sides - 540 and 240 ft.; other sides - 400 and 430 ft.

SLOPES: 60% is in 2 to 8% class; 2% in 8 to 15%; 38% in 15 to 25%. Aspect W.

SOILS: Parent material - limestone and shales; medium to moderately fine textured; mellow; effective depth 20 to 60 in. Groseclose loam - 57%, moderate permeability; Lodi silt loam and silty clay loam - 39%, moderately rapid permeability; Greendale - 4%, moderately slow permeability.

EROSION: 2 - 78%; 4 - 18%; + - 4%.

LAND CAPABILITY: II - 62%; III - 38%.

SURFACE DRAINAGE: Good; principal waterway - 460 ft.

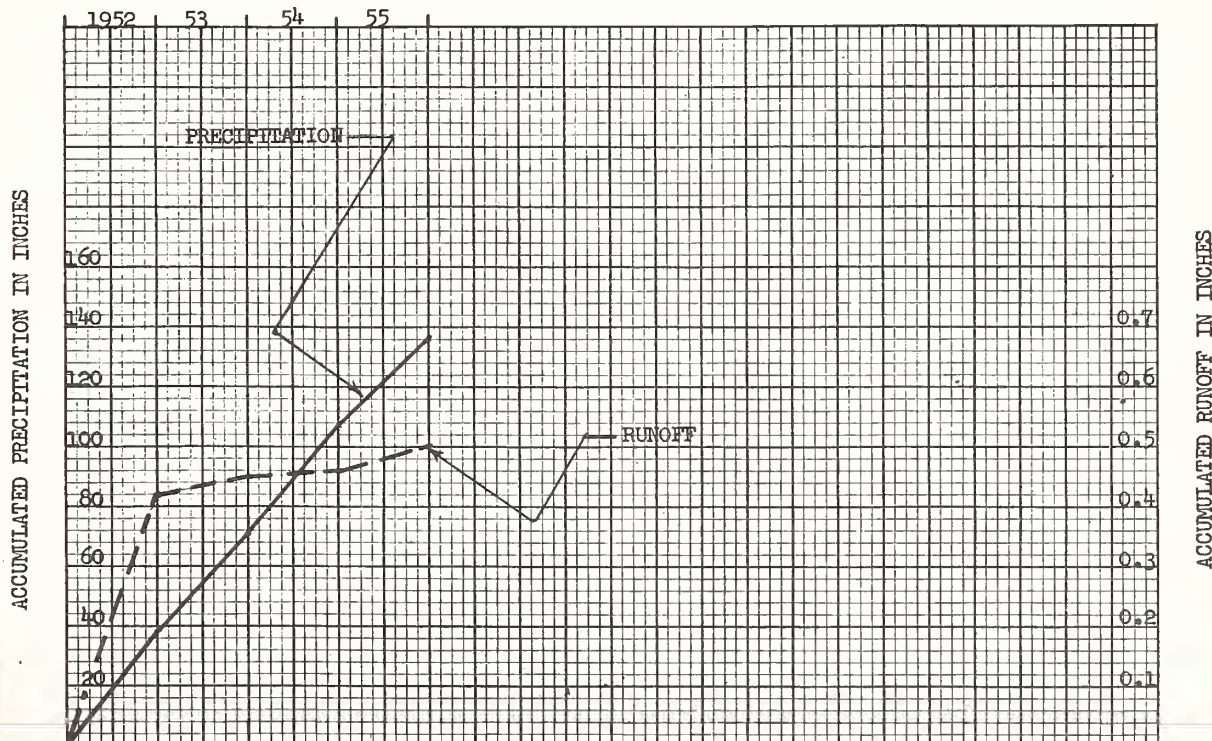
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, 6 hr. chart; precipitation - recording gage, 6 hr. chart.

WATERSHED CONDITIONS: All cultivated; contoured strips with a rotation of corn, small grain and clover. A mulch tillage program is practiced. No crop residue is removed except one clover hay crop each year.

GENERALLY REPRESENTS: Cultivated areas of the Appalachian Valleys and Ridges problem area.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Joint Research Project of U.S.D.A. and Virginia Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Blacksburg, Va. Watershed W-IV**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1951 P Q									2.44 T	0.84 0	2.81 .01	3.16 T	9.25 .01
1952 P Q	4.47 .05	1.84 T	3.38 .01	4.01 .01	2.83 T	2.99 T	3.03 T	8.80 .35	.97 0	.88 0	3.88 T	2.44 0	39.52 .42
1953 P Q	2.52 0	3.31 0	3.92 T	2.46 0	4.17 T	5.64 T	2.44 0	3.16 .03	.81 0	.22 0	.39 0	3.37 0	32.41 .03
1954 P Q	4.42 0	2.17 0	3.40 0	2.07 0	3.61 0	1.17 0	3.98 T	4.50 .01	1.33 0	4.41 0	1.48 0	2.80 0	35.34 .01
1955 P Q	1.13 0	4.52 .01	6.92 .01	2.23 0	1.18 0	3.72 .02	1.62 T	3.43 0	.34 0	1.62 0	1.56 0	1.27 0	29.54 .04
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**Av. P **Av. Q	3.14 .01	2.96 T	4.40 T	2.69 T	2.95 T	3.38 T	2.77 T	4.97 .10	.86 0	1.78 0	1.83 0	2.47 0	34.20 .11
Normal P	2.96	2.89	3.38	3.09	4.58	4.23	4.98	3.92	2.85	2.82	2.26	2.97	40.93

**Notes:** \*\*Does not include the part year amounts for 1951. T = Trace of runoff. Normal P based on 63 year record (1892 - 1955) at Blacksburg, Va. Quality of records; P - excellent, Q - excellent.



1-56

BLACKSBURG, VA. Watershed W V

LOCATION: Montgomery Co., Va.; 4 mi. W., 1 mi. S. of Blacksburg, near Prices Fork; Toms Creek, New River.

AREA: 6.08 Ac.

SHAPE: Roughly a quadrangle, side 340 ft., angle 115°; 500 ft., angle 73°; 700 ft., angle 68°; 580 ft.

SLOPES: 25% in the 2 to 8% class; 40% in 8 to 15%; 35% in 15 to 25%. Aspect N.

SOILS: Parent material - limestone and shales; medium to moderately fine textured; mellow; effective depth 20 to 60 in. Groseclose loam - 67%, moderate permeability; Litz - 25%, moderately rapid permeability; Greendale - 8%, moderately slow permeability.

EROSION: 2 - 17%; 3 - 67%; 4 - 7%; + - 9%.

LAND CAPABILITY: II - 25%; III - 75%.

SURFACE DRAINAGE: Good; principal waterway - 600 ft.

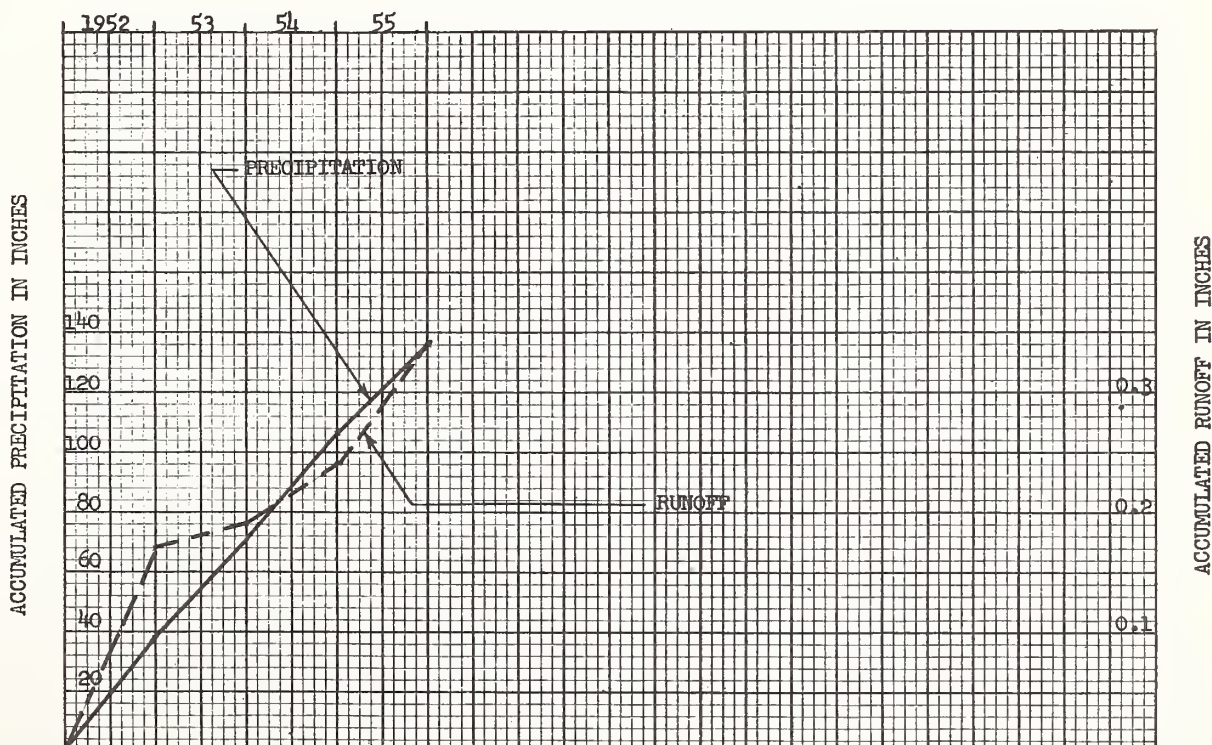
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, 6 hr. chart; precipitation - recording gage, 6 hr. chart.

WATERSHED CONDITIONS: All cultivated; contoured strips with a rotation of corn, small grain and clover. A mulch tillage program is practiced. No crop residue is removed except one clover hay crop each year.

GENERALLY REPRESENTS: Cultivated areas of the Appalachian Valleys and Ridges problem area.

ACCUMULATED PRECIPITATION AND RUNOFF

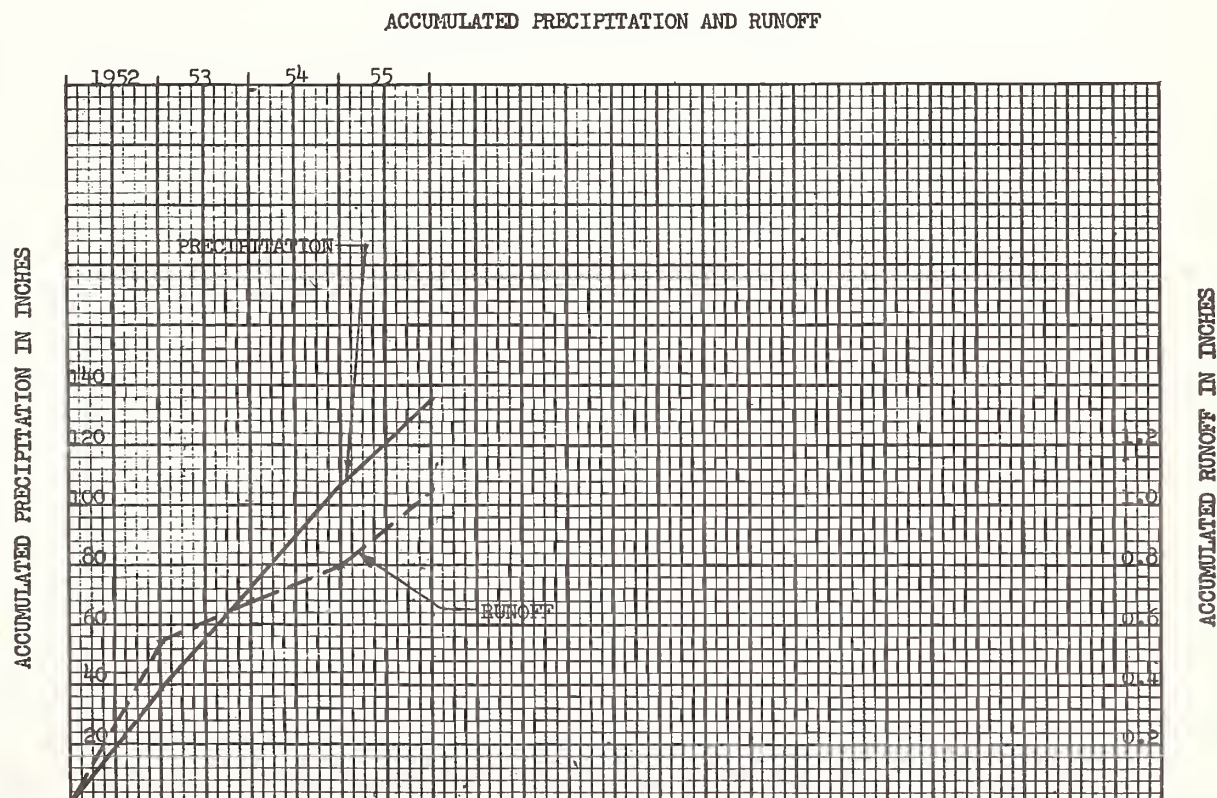


MONTHLY PRECIPITATION AND RUNOFF (Inches) Blacksburg, Va. Watershed W-V

<div><div></div><div>Month</div></div> <div>Year</div>		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1952	P Q	4.47 0	1.84 0	3.38 0	4.01 0	2.83 T	2.99 T	3.03 T	8.80 .17	0.97 0	0.88 0	3.88 T	2.44 0	39.52 .17
1953	P Q	2.52 0	3.31 0	3.92 0	2.46 0	4.17 T	5.64 T	2.44 T	3.16 .02	.81 0	.22 0	.39 0	3.37 0	32.41 .02
1954	P Q	4.42 0	2.17 0	3.40 0	2.07 0	3.61 0	1.17 T	3.98 .01	4.50 .04	1.33 T	4.41 T	1.48 0	2.80 0	35.34 .05
1955	P Q	1.13 .03	4.52 T	6.92 .02	2.23 0	1.18 0	3.72 .05	1.62 T	3.43 0	.34 0	1.62 0	1.56 0	1.27 T	29.54 .10
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Av. P	P	3.14	2.96	4.40	2.69	2.95	3.38	2.77	4.97	.86	1.78	1.83	2.47	34.20
Av. Q	Q	.01	T	.01	0	T	.01	T	.06	0	T	0	T	.09
Normal	P	2.96	2.89	3.38	3.09	4.58	4.23	4.98	3.92	2.85	2.82	2.26	2.97	40.93

Notes: T = Trace of runoff. Normal P based on 63 year record (1892 - 1955) at Blacksburg, Va.  
Quality of records; P - excellent, Q - excellent.

1-56  
LOCATION: Montgomery Co., Va.; 4 mi. W., 1 mi. S. of Blacksburg, near Prices Fork; Toms Creek, New River  
AREA: 7.70 ac. SHAPE: Roughly a quadrangle; side 240 ft., angle 111°; 700 ft., angle 82°; 650 ft., angle 67°; 820 ft.  
SLOPES: 16% is in 2 to 8% class; 41% in 8 to 15%; 43% in 15 to 25%. Aspect N.  
SOILS: Parent material - limestone and shales; medium to moderately fine textured; mellow; effective depth 20 to 60 in. Groseclose loam - 74%, moderate permeability; Litz - 19%, moderately rapid permeability; Greendale - 7%, moderately slow permeability.  
EROSION: 3 - 63%; 4 - 30%; + - 7%.  
LAND CAPABILITY: II - 16%; III - 84%.  
SURFACE DRAINAGE: Good; principal waterway - 760 Ft.  
CHARACTER OF FLOW: Ephemeral, continuous.  
INSTRUMENTATION: Runoff - 3 ft. H-type flume, 6 hr. chart; precipitation - recording gage, 6 hr. chart.  
WATERSHED CONDITIONS: All cultivated; contoured strips with a rotation of corn, small grain, and clover. A mulch tillage program is practiced. No crop residue is removed except one clover hay crop each year.  
GENERALLY REPRESENTS: Cultivated areas of the Appalachian Valleys and Ridges problem area.





**MONTHLY PRECIPITATION AND RUNOFF (Inches) Blacksburg, Va. Watershed W-VI**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1951 P Q									2.44 0	0.84 0	2.81 T	3.16 .02	9.25 .02
1952 P Q	4.47 .01	1.84 T	3.38 T	4.01 T	2.83 .01	2.99 .01	3.03 T	8.80 .51	.97 0	.88 0	3.88 .01	2.44 0	39.52 .55
1953 P Q	2.52 T	3.31 T	3.92 .04	2.46 0	4.17 .02	5.64 T	2.44 T	3.16 .07	.81 0	.22 0	.39 0	3.37 0	32.41 .13
1954 P Q	4.42 T	2.17 T	3.40 .03	2.07 0	3.61 0	1.17 0	3.98 0	4.50 .06	1.33 0	4.41 .03	1.48 0	2.80 0	35.34 .12
1955 P Q	1.13 0	4.52 .01	6.92 .19	2.23 T	1.18 T	3.72 .06	1.62 0	3.43 T	.34 0	1.62 0	1.56 0	1.27 0	29.54 .26
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**Av. P **Av. Q	3.14 T	2.96 T	4.40 .07	2.69 T	2.95 .01	3.38 .02	2.77 T	4.97 .16	.86 0	1.78 .01	1.83 T	2.47 0	34.20 .27
Normal P	2.96	2.89	3.38	3.09	4.58	4.23	4.98	3.92	2.85	2.82	2.26	2.97	40.93

Notes: \*\*Does not include the part year amounts for 1951. T = Trace of runoff. Normal P based on 63 year record (1892 - 1955) at Blacksburg, Va. Quality of records; P - excellent, Q - excellent.

9-55

CHATHAM (DANVILLE), VA. Watershed W I

LOCATION: Pittsylvania Co., Va.; 4 mi. S. W. of Chatham; Banister River, Roanoke River.

AREA: 13.3 ac.

SHAPE: Roughly rt. angle triangle - sides 1000, 930, and 1260 ft.

SLOPES: 58% is in 3-7% class; 26% in 7-12%; 16% in 12% and over. Aspect S-SW.

SOILS: Parent material - quartz, mica, schist. Topsoil - shallow, 2 to 6 in., medium textured, moderately well drained; subsoil - 10 to 25 in. impeding stratum occurring at 12-18 in. Madison very fine sand loam - 71%; Madison clay loam - 14%; Louisa clay loam - 11%; Louisa very fine clay loam - 4%.

EROSION: 2 - 75%; 3 - 25%.

LAND CAPABILITY: II - 39%; III - 34%; IV - 27%.

SURFACE DRAINAGE: Good; principal waterway - 1000 ft. Completely terraced; avg. terrace length - 720 ft.; terrace grade range - 0.06 to 0.2%; no. of terraces - 10.

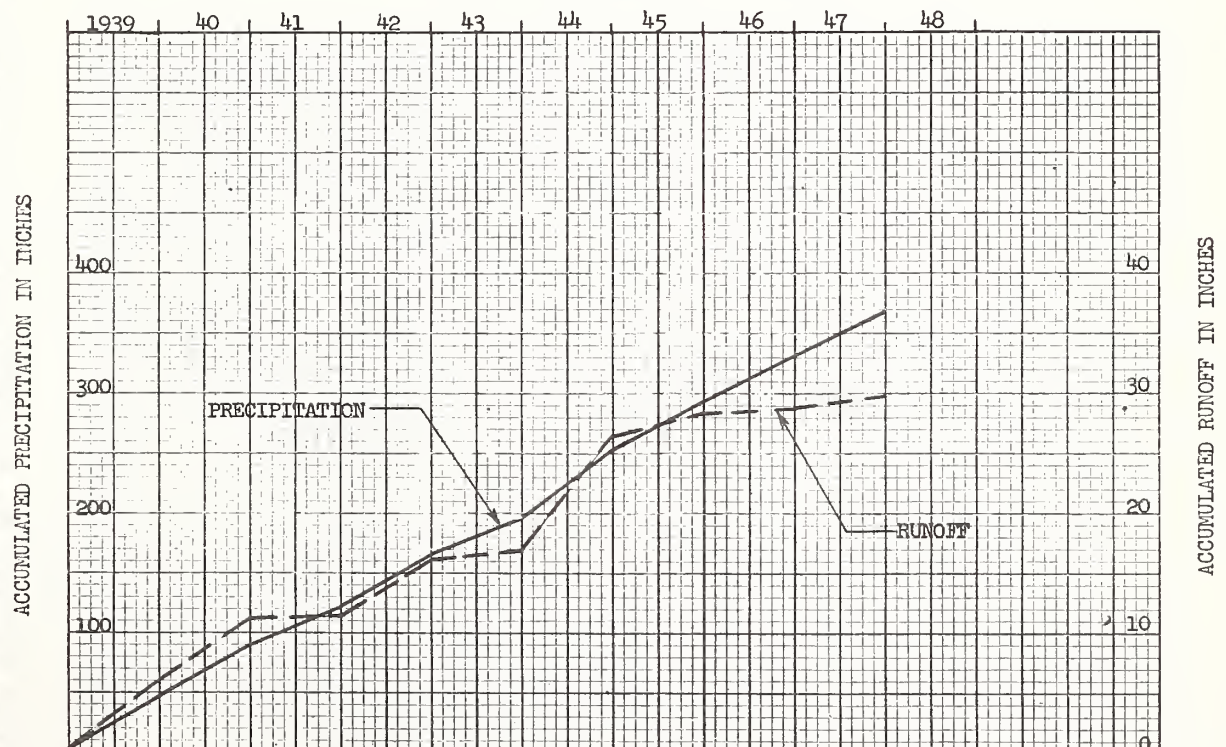
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30 in. broad crested weir with 3:1 side slopes, 6 hr. chart; precipitation - recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Cultivated - 91%; crops - tobacco, corn, wheat and hay; no rotation system followed; farmed in five fields. Woodland - 4%; meadow strip - 5%.

GENERALLY REPRESENTS: Cultivated areas of Crystalline Rock land resource unit of the Piedmont Plateau problem area. Most applicable to that portion of the problem area lying in Virginia and the northern half of North Carolina.

ACCUMULATED PRECIPITATION AND RUNOFF



MONTHLY PRECIPITATION AND RUNOFF (Inches) Chatham, Virginia, Watershed W-1

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P Q								2.76 .16	1.93 .01	.77 0	4.43 .04	3.62 .04	13.51 .25
1939	P Q	2.97 .04	6.95 .51	3.07 .05	2.35 T	1.09 0	5.42 1.29	6.26 1.89	7.90 2.17	.69 0	2.61 T	2.09 T	2.29 T	43.69 5.95
1940	P Q	2.09 .01	2.95 .12	2.14 0	2.51 .01	3.66 T	4.52 T	7.12 .87	13.72 3.92	.41 T	.71 0	5.32 .08	.77 .11	45.92 5.12
1941	P Q	2.04 0	1.07 0	2.17 T	3.61 .04	1.06 0	4.52 T	8.23 .08	1.54 T	1.34 0	.49 0	.70 0	3.44 .05	30.21 .17
1942	P Q	2.35 0	1.97 .03	3.13 .13	.63 0	6.96 1.71	4.97 .63	1.77 T	9.82 1.91	3.70 .04	3.76 .01	1.34 T	4.51 .37	44.91 4.83
1943	P Q	2.56 .01	2.01 .30	3.70 .17	3.41 .19	2.62 0	5.09 .03	3.55 T	1.82 T	1.79 0	1.16 T	1.04 T	1.94 T	30.69 .70
1944	P Q	2.68 .02	4.17 .14	7.10 .48	4.37 .12	3.90 .22	3.35 .18	4.99 .24	1.58 0	17.38 8.00	2.52 .16	1.96 T	2.29 .01	56.29 9.57
1945	P Q	2.88 .39	3.44 .07	1.50 0	2.98 T	3.75 .07	2.34 T	5.31 .53	.81 0	9.79 .54	1.37 0	<sup>a</sup> .74 T	<sup>a</sup> 5.36 .13	40.27 1.73
1946	P Q	<sup>a</sup> 4.03 0	<sup>a</sup> 3.33 .16	.60 0	3.28 T	4.18 .01	1.57 0	9.06 .40	1.02 .01	5.32 .22	2.38 0	<sup>a</sup> 2.31 T	<sup>a</sup> 2.05 0	39.13 .81
1947	P Q	<sup>a</sup> 5.04 .29	<sup>a</sup> 1.57 0	<sup>a</sup> 2.29 .04	3.44 .06	3.09 0	1.85 T	3.49 0	1.74 0	6.61 .17	2.92 0	3.58 .09	<sup>a</sup> .99 0	36.61 .65
1948	P Q	<sup>a</sup> 4.25 .05	<sup>a</sup> 2.13 .31	<sup>a</sup> 6.08 .17	2.82 .02	5.64 .46	2.90 .06	4.37 .01	3.69 .02	3.09 0	2.64 0	5.86 .06		43.47 1.16
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** Av. P ** Av. Q		2.96 .08	3.05 .15	2.86 .10	2.95 .05	3.37 .22	3.74 .24	5.53 .45	4.43 .89	5.23 .99	1.99 .02	2.12 .02	2.63 .07	40.86 3.28
Normal P		3.68	2.92	3.57	3.38	3.62	3.49	4.50	4.30	4.11	2.89	2.85	3.35	42.66

**Notes:** T-Trace Runoff. \*\*Does not include the part year amounts for 1938 and 1948. <sup>a</sup>Monthly total from R-2, R-1 operating during summer months only. Normal P based on 31 yr. W.B. record (1924-1954) 2 mi. N. E. of Chatham. Quality of records; P - excellent, Q - excellent.



9-55

CHATHAM (DANVILLE), VA. Watershed W II

LOCATION: Pittsylvania Co., Va.; 4 mi. S. of Chatham; Banister River, Roanoke River.

AREA: 16.1 ac.

SHAPE: Roughly a parallelogram with acute angles of 65°. Sides - 920 and 800 ft.

SLOPES: 4% is in 0-3% class; 88% in 3-7%; 8% in 7-12%. Aspect W-NW.

SOILS: Parent material - sandstone and shale. Mayodan sandy loam - 47%; topsoil - 5 to 7 in., mellow, friable; subsoil compact clay - 16 in. thick, impeding stratum at 22 in. Wadesboro clay loam - 6%; Cecil sandy clay and clay loam - 11%; Appling sandy loam - 7%; all similar to Mayodan. Granville sandy loam - 29%; topsoil - 3 to 6 in.; impeding stratum at 36 in. Moderately well drained.

EROSION: 1 - 6%; 2 - 73%; 3 - 21%.

LAND CAPABILITY: II - 31%; III - 69%.

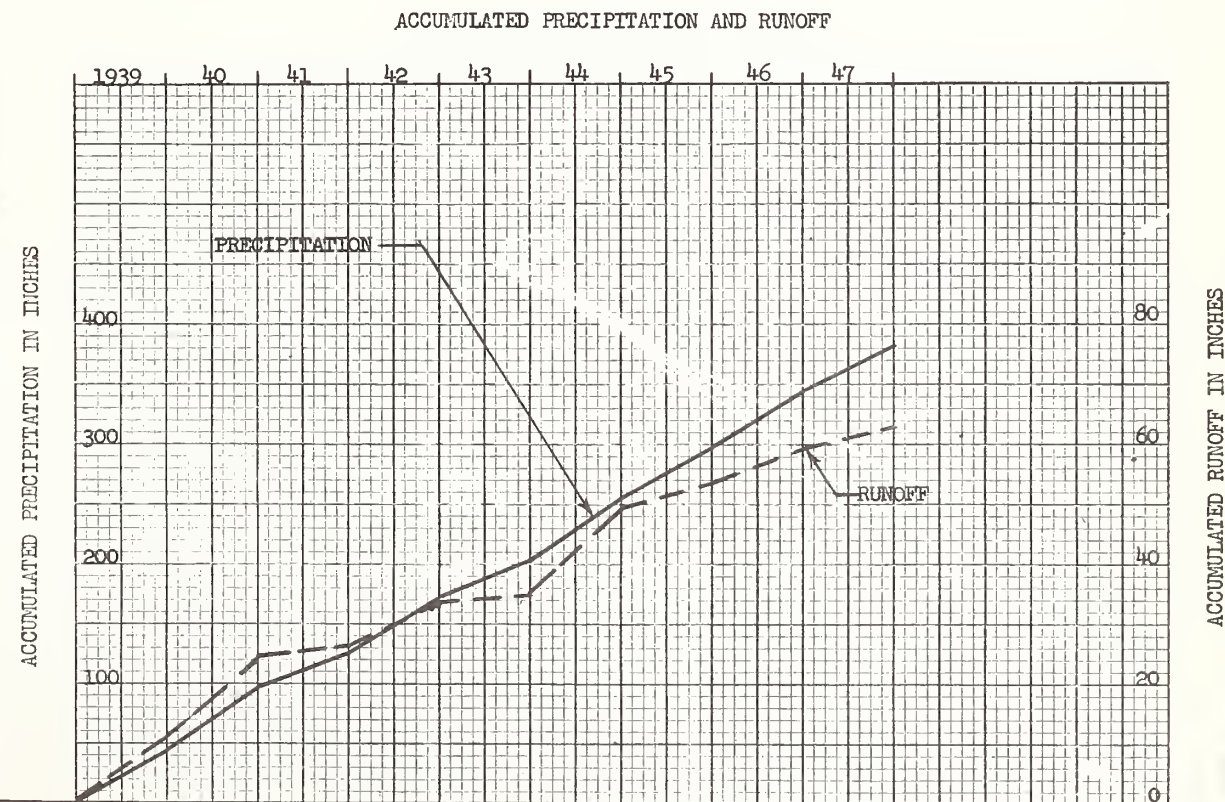
SURFACE DRAINAGE: Good; principal waterway - 1385 ft. Completely terraced; avg. length of 2/3 of area - 630 ft., 1/3 of area - 310 ft.; terrace grade - 0.27 to 0.61%; no. of terraces - 10.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16 in. broad crested weir with 2:1 side slopes, 6 hr. chart; precipitation - recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Cultivated - 97%; crops - tobacco, corn, peas, and hay; farmed in five fields; no rotation system followed; 13% of cultivated area covered by weeds and pines in period of 1946-50. Sodded waterway - 3%.

GENERALLY REPRESENTS: Cultivated areas of the Triassic Basins, Piedmont Plateau area.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Chatham, Virginia, Watershed W-II**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P								2.84	2.61	.87	4.33	3.46	14.11
Q								1.16	.31	0	.82	.18	2.47
1939 P	2.95	6.50	3.34	2.08	1.22	6.39	5.09	8.83	.85	2.62	2.42	2.21	44.50
Q	.17	2.11	.84	.01	0	2.36	1.08	3.55	0	.10	0	.07	10.29
1940 P	1.98	2.97	2.20	3.27	3.87	4.68	6.74	16.10	.63	1.01	5.36	2.57	51.38
Q	.11	.52	0	.12	.23	.73	1.72	8.94	.01	0	1.06	.29	13.73
1941 P	2.42	.97	2.22	3.40	1.17	4.61	7.90	1.09	.93	.69	.65	3.13	29.18
Q	.06	0	0	.21	0	.43	1.36	0	0	0	0	0	2.06
1942 P	2.49	2.01	3.62	.76	5.75	5.43	2.69	10.16	3.76	4.43	1.35	4.01	46.46
Q	0	.04	.27	0	.74	1.21	.01	3.74	.20	.38	0	.62	7.21
1943 P	2.73	1.81	3.46	3.01	2.28	4.84	5.17	1.27	1.60	.78	.84	2.10	29.89
Q	.02	.56	.14	.24	0	.31	.40	0	0	0	0	0	1.67
1944 P	2.81	4.06	7.02	5.31	4.04	2.36	4.30	2.33	16.86	2.46	2.58	2.40	56.53
Q	.03	.37	2.08	1.43	.30	.17	.57	.14	8.55	.42	.05	.08	14.19
1945 P	2.82	3.64	1.56	2.72	3.43	1.45	6.20	1.34	9.01	1.54	.74	5.36	39.81
Q	.65	.20	0	T	.19	0	.05	0	1.85	0	.02	1.15	4.11
1946 P	4.03	3.33	2.19	3.87	3.72	3.71	10.50	.76	6.70	2.12	2.31	2.05	45.29
Q	.72	.58	0	.18	.14	.09	2.54	0	1.53	0	.05	0	5.83
1947 P	5.04	1.57	2.29	3.60	2.92	1.66	2.85	1.58	6.10	4.23	5.53	.99	38.36
Q	1.38	0	.24	.38	0	0	0	0	.24	.19	.71	0	3.14
1948 P	4.25	2.13	6.08	2.85	4.87	2.57	3.33	3.46	4.68	2.63	6.22		43.07
Q	.09	.66	.69	.11	.11	0	0	.03	.04	.05	.44		2.22
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** Av. P	3.07	2.98	3.10	3.11	3.16	3.90	5.72	4.83	5.16	2.21	2.42	2.76	42.38
** Av. Q	.54	.49	.39	.29	.18	.59	.86	1.81	1.38	.12	.21	.25	6.91
Normal P	3.68	2.92	3.57	3.38	3.62	3.49	4.50	4.30	4.11	2.89	2.85	3.35	42.66

**Notes:** T-Trace Runoff. \*\*Does not include the part year amounts for 1938 and 1948. Normal P based on 31 yr. W. B. record (1924-1954) 2 mi. N. E. of Chatham. Quality of records; P - excellent, Q - excellent.

LOCATION: Pittsylvania Co., Va.; 12 mi. S. W. of Chatham; Banister River, Roanoke River.

AREA: 17.1 ac.

SHAPE: Roughly a quadrangle, sides - 1230 ft., angle 77°, 850 ft., angle 81°, 1120 ft., angle 112°, and 410 ft.

SLOPES: 1% is in 0-3% class; 89% in 3-7%; 10% in 7-12%. Aspect N-NE.

SOILS: Parent material - granite, gneiss, schist. Durham sandy loam - 35%; topsoil - 4 to 8 in., friable; impeding layer at 22 to 26 in. Appling sandy loam - 39%; topsoil - 3 to 8 in., mellow; impeding layer at 21 to 28 in. Cecil clay and sandy loam - 19%; topsoil - 1 to 4 in., mellow; impeding layer at 19 to 23 in. Seneca loam - 7%; topsoil - 3 1/4 in. Moderately well drained.

EROSION: + - 7%; 1 - 29%; 2 - 58%; 3 - 6%.

LAND CAPABILITY: II - 7%; III - 93%.

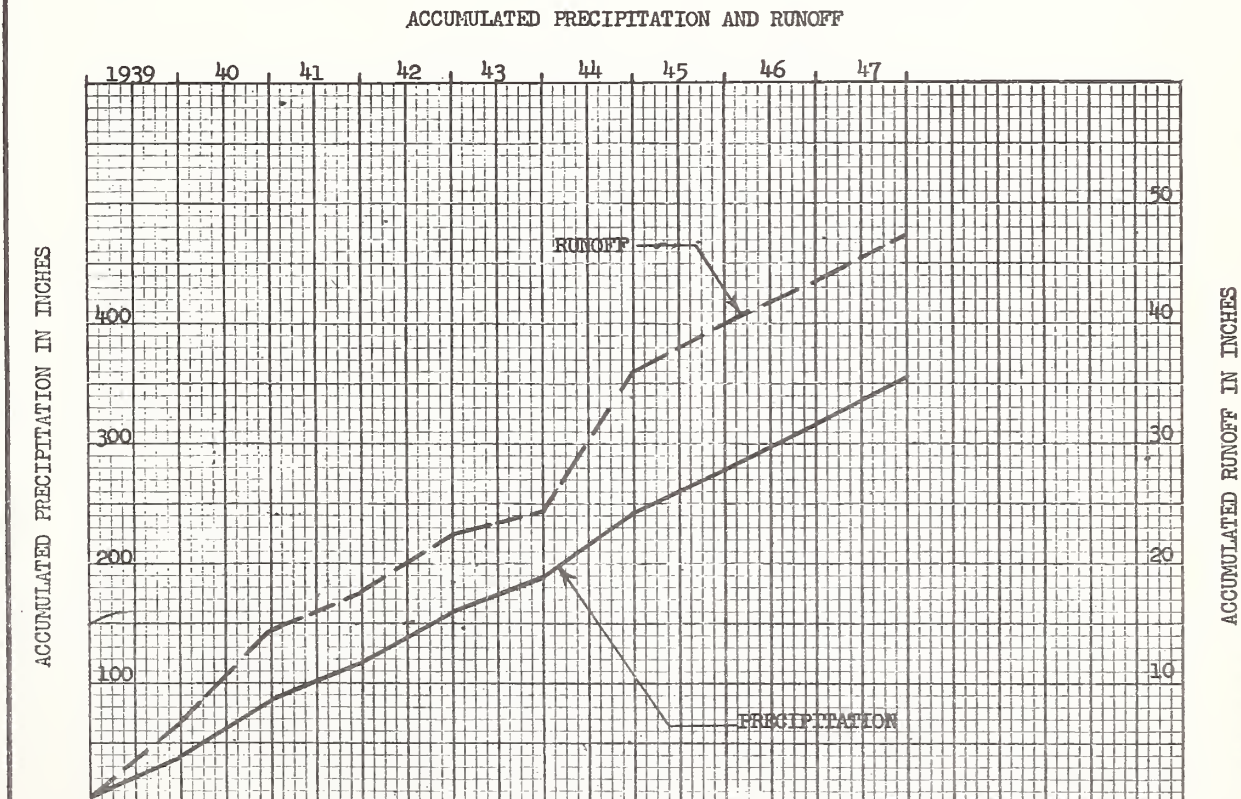
SURFACE DRAINAGE: Good; principal waterway - 1120 ft. Completely terraced; avg. length - 420 ft.; terrace grades - 0.16 to 1.03%; no. of terraces - 13.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16 in. broad crested weir with 2:1 side slopes, 6 hr. chart; precipitation - recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Cultivated - 90%; crops - tobacco, wheat, hay, and idle land; no rotation system followed; farmed in four fields. Woodland - 7%; road and waterway - 3%.

GENERALLY REPRESENTS: Cultivated areas of Crystalline rock land resource unit of the Piedmont Plateau problem area. Most applicable to that portion of the problem area lying in Virginia and the northern half of North Carolina.





**MONTHLY PRECIPITATION AND RUNOFF (Inches) Chatham, Virginia, Watershed W-III**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P								.92	3.04	.71	4.84	3.30	12.81
Q								.15	.61	0	.67	.17	1.60
1939 P	2.84	6.83	3.31	2.26	1.92	3.74	4.34	7.41	.30	2.38	1.82	.99	38.14
Q	.31	2.09	1.10	.03	.07	.77	.35	1.72	0	.05	T	.02	6.51
1940 P	1.73	2.95	2.21	2.70	3.83	3.21	4.14	14.78	.60	.63	5.20	2.47	44.45
Q	.03	.05	0	.03	.11	.05	.13	6.53	.03	0	.65	.20	7.81
1941 P	2.24	1.16	2.11	2.86	1.10	7.12	7.36	2.04	1.39	.53	.70	3.09	31.70
Q	.05	T	T	.06	0	1.51	.93	.20	T	0	0	.27	3.02
1942 P	2.22	1.99	3.36	.69	7.69	4.40	2.65	7.84	3.23	4.42	1.30	4.15	43.94
Q	T	.01	.09	0	1.87	.46	.06	1.63	.10	.40	0	.38	5.00
1943 P	2.10	1.94	3.32	2.99	2.90	5.04	2.52	.90	1.62	1.14	1.09	2.08	27.64
Q	.01	.22	.16	.23	.11	.98	.08	0	0	0	.05	.01	1.85
1944 P	2.52	4.34	6.85	4.59	3.33	1.88	5.23	1.83	17.68	2.04	2.46	2.18	54.93
Q	0	.06	.89	.71	.13	.09	.37	.15	8.93	.20	.02	.01	11.56
1945 P	2.84	3.56	1.72	2.63	3.29	1.15	6.10	1.90	7.75	1.21	<sup>a</sup> .74	<sup>a</sup> 5.36	38.25
Q	.71	.27	.04	0	.35	0	1.14	.05	1.27	0	.04	.36	4.23
1946 P	<sup>a</sup> 4.03	<sup>a</sup> 3.33	.41	3.09	2.87	3.46	5.49	1.62	4.73	1.85	<sup>a</sup> 2.31	<sup>a</sup> 2.05	35.24
Q	.50	.36	.01	.06	.01	.63	.96	0	.81	T	T	0	3.34
1947 P	<sup>a</sup> 5.04	<sup>a</sup> 1.57	<sup>a</sup> 2.29	3.33	2.83	3.27	4.50	2.10	6.29	4.51	3.46	<sup>a</sup> .99	40.18
Q	.37	0	.02	.15	.03	.07	.57	.13	1.62	.60	.32	0	3.88
1948 P	<sup>a</sup> 4.25	<sup>a</sup> 2.13	<sup>a</sup> 6.08	2.41	4.33	5.17	2.66	3.85	2.74	2.49	6.06		42.17
Q	.02	.97	1.07	.23	.09	.48	.32	.33	T	.08	.67		4.26
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** Av. P	2.84	3.07	2.84	2.79	3.31	3.70	4.70	4.49	4.84	2.08	2.12	2.60	39.38
** Av. Q	.22	.34	.26	.14	.29	.50	.51	1.16	1.42	.14	.12	.14	5.24
Normal P	3.68	2.92	3.57	3.38	3.62	3.49	4.50	4.30	4.11	2.89	2.85	3.35	42.66

**Notes:** T- Trace Runoff. \*\* Does not include the part year amounts for 1938 and 1948. <sup>a</sup>Monthly total from R-2, R-1 operating during summer months only. Normal P based on 31 yr. W. B. record (1924-1954) 2 mi. N. E. of Chatham. Quality of records; P - excellent, Q - excellent.

LOCATION: Augusta Co., Va.; 3.1 mi. W. Staunton; Middle River Basin.

AREA: 390 ac.

SHAPE: Roughly rectangular, 2300 ft. wide by 7400 ft. long.

SLOPES: 14% is in 2-6% class; 34% in 6-15%; 52% in 15-25%. Aspect NE.

SOILS: Topsoil - mostly moderately fine textured, 6 to 10 in. deep; subsoil - moderately rapid permeability, effective depth - 36 to 60 in.; underlying materials - cherty limestone and sandstone. Frederick silty clay loam - 86%; Lodi fine sandy loam - 6%; various silt loams - 8%.

EROSION: + - 5%; 1 - 9%; 2 - 73%; 3 - 13%.

LAND CAPABILITY: II - 14%; III - 34%; IV - 49%; VII - 3%.

SURFACE DRAINAGE: Good; principal waterway - 1.4 mi.

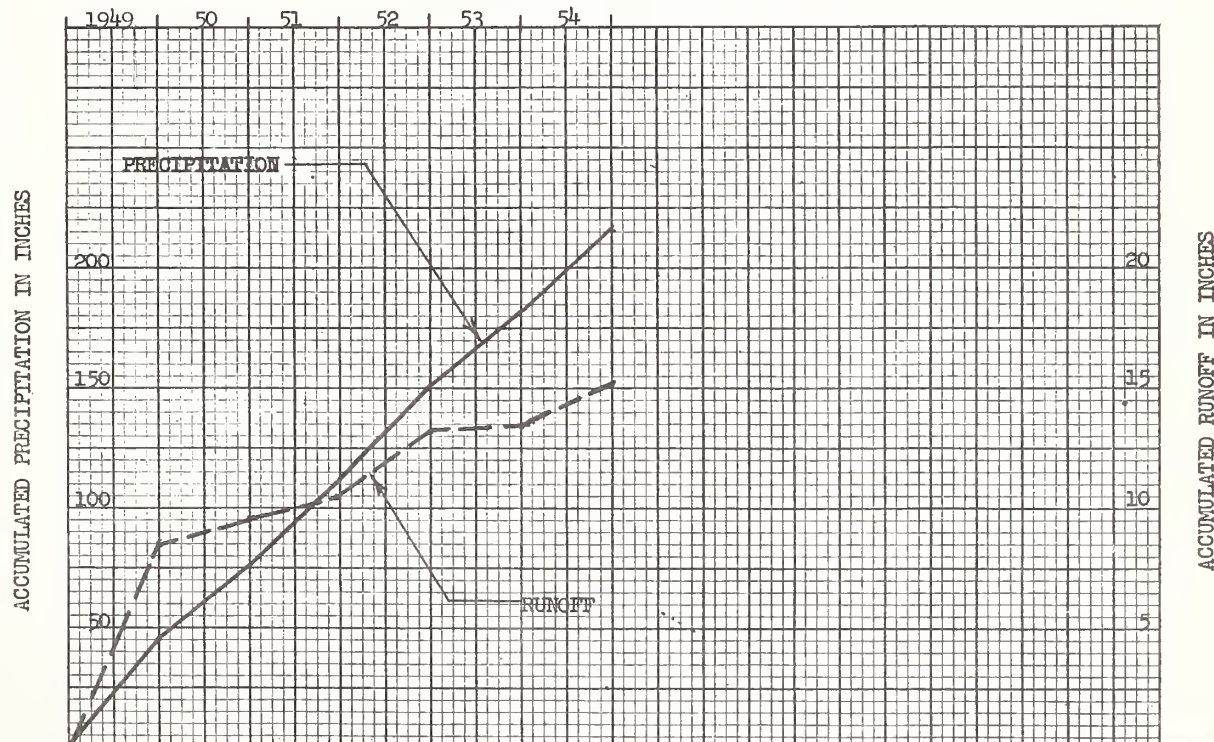
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - precalibrated V-notch weir for very low flows, current meter rated section for high flows, 24 hr. chart; precipitation - recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Cultivated 26%, common rotation is corn, small grain, and hay; forest 11%, mixed, second growth, grazed; native pasture - 63%, usually good cover of blue grass, broom sedge, other grasses, and white clover.

GENERALLY REPRESENTS: Mixed farming and forested areas of the Appalachian Valley and Ridges problem area; well drained valley land; rolling topography.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Staunton, Va. Bell Creek Watershed W I**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1948 P							1.72	3.07	4.27	3.69	<sup>a</sup> 4.77	<sup>a</sup> 4.68	22.20
Q							0	0	0	.04	.04	.48	.56
1949 P	<sup>a</sup> 4.39	<sup>a</sup> 1.26	<sup>a</sup> 1.78	4.08	5.17	8.19	6.08	6.70	1.39	3.23	<sup>a</sup> 1.94	<sup>a</sup> 1.46	45.67
Q	1.22	.99	.49	.87	.58	1.09	1.21	.97	.49	.19	.39	.02	8.51
1950 P	<sup>a</sup> 2.45	<sup>a</sup> 2.03	<sup>a</sup> 2.59	1.25	5.25	1.46	2.00	1.03	4.76	.84	<sup>a</sup> 2.32	<sup>a</sup> 3.42	29.40
Q	0	.23	.25	.23	.17	.09	0	0	.01	0	0	.02	1.00
1951 P	<sup>a</sup> 2.07	<sup>a</sup> 2.46	<sup>a</sup> 3.11	3.64	2.47	4.74	4.80	1.83	1.77	<sup>a</sup> .56	<sup>a</sup> 2.96	<sup>a</sup> 4.53	34.94
Q	0	0	0	.46	.35	.16	.02	0	0	0	0	0	.99
1952 P	<sup>a</sup> 4.70	<sup>a</sup> 2.66	<sup>a</sup> 4.20	<sup>a</sup> 5.06	4.60	1.35	2.24	6.89	1.60	1.00	<sup>a</sup> 3.79	<sup>a</sup> 2.47	40.56
Q	0	.11	.62	.70	.98	.27	.04	.01	0	0	0	0	2.73
1953 P	<sup>a</sup> 2.32	<sup>a</sup> 2.46	<sup>a</sup> 4.97	2.89	2.65	4.16	3.30	2.77	1.29	<sup>a</sup> .42	<sup>a</sup> .54	<sup>a</sup> 2.46	30.23
Q	0	0	.01	.09	.01	0	.01	0	0	0	0	0	.12
1954 P	<sup>a</sup> 2.42	<sup>a</sup> 2.08	<sup>a</sup> 3.84	<sup>a</sup> 1.53	<sup>a</sup> 3.59	<sup>a</sup> 3.01	<sup>a</sup> 2.65	3.13	.76	<sup>a</sup> 6.03	<sup>a</sup> 3.13	<sup>a</sup> 3.45	35.62
Q	0	0	0	0	0	0	0	0	0	*1.77	0	0	1.77
1955 P	<sup>a</sup> .34	<sup>a</sup> 2.60	<sup>a</sup> 3.85	<sup>a</sup> 2.24	<sup>a</sup> 2.33	<sup>a</sup> 3.90	<sup>a</sup> 3.65	<sup>a</sup> 7.38	<sup>a</sup> 1.79				28.08
Q	0	.16	0	0	0	.01	0	0	0				.17
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** Av. P	3.06	2.16	3.41	3.07	3.96	3.82	3.51	3.73	1.93	2.01	2.45	2.96	36.07
** Av. Q	.20	.22	.23	.39	.35	.27	.21	.16	.08	.33	.07	.01	2.52
Normal P	2.84	2.34	3.14	3.02	3.30	4.22	4.23	4.09	2.85	2.96	2.09	2.64	37.72

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1948 and 1955. <sup>a</sup>Monthly total from R-2, R-1 operating during summer months only. Normal P based on 69 yr. W. B. record (1886-1954) at Staunton D. & B. Institution, Staunton, Va. Quality of records; P - fair, Q - fair.



9-55

STAUNTON, VA. BELL CREEK Watershed W II

LOCATION: Augusta Co., Va.; 3.2 mi. N. W. of Staunton; Middle River Basin.

AREA: 2430 ac. (3.80 sq. mi.)      SHAPE: Roughly rectangular, about 1.7 mi. wide by 2.2 mi. long.

SLOPES: 26% is in 2-6% class; 34% in 6-15%; 40% in 15-25%. Aspect N-NE.

SOILS: Topsoil - mostly moderately fine textured, 6 to 10 in. deep; subsoil - moderately rapid permeability, effective depth - 36 to 60 in.; underlying materials - cherty limestone and sandstone. Frederick silty clay loam - 67%; Lodi fine sandy loam - 25%; various silt loams - 8%.

EROSION: + - 5%; 1 - 8%; 2 - 81%; 3 - 6%.

LAND CAPABILITY: I - 1%; II - 23%; III - 36%; IV - 39%; VII - 1%.

SURFACE DRAINAGE: Good; principal waterway - 3.1 mi.

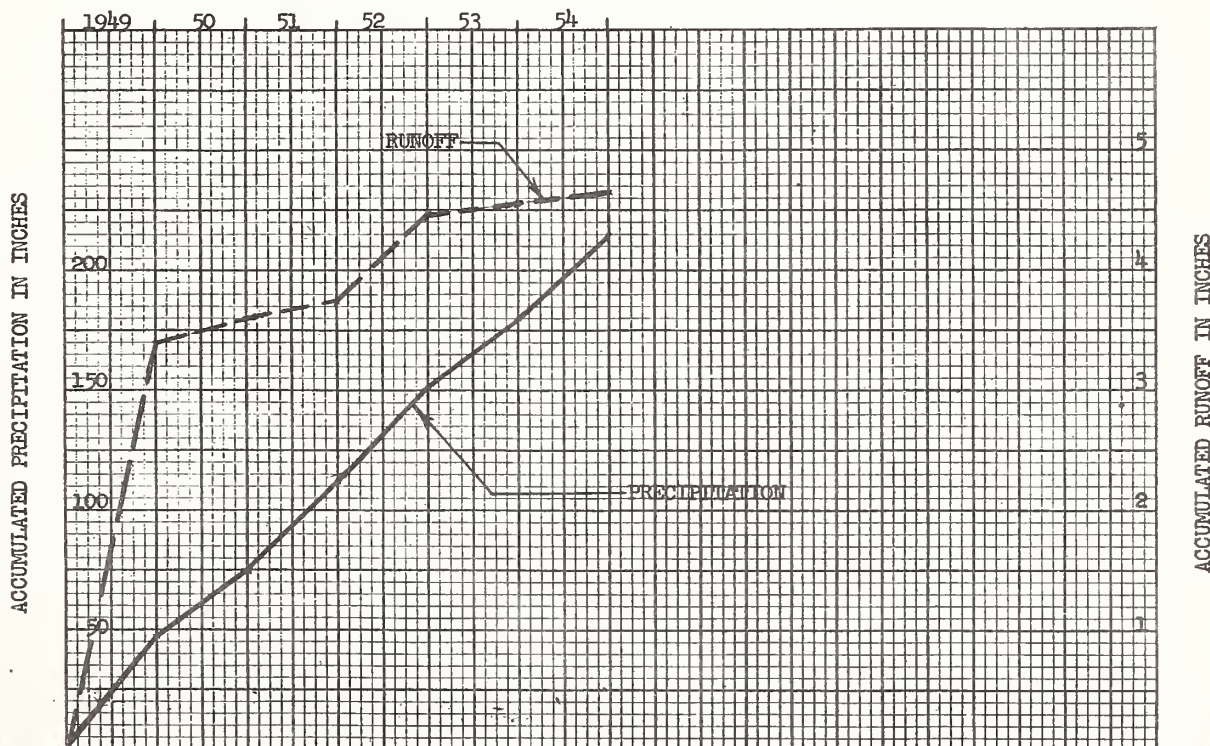
CHARACTER OF FLOW: Intermittent, interrupted.

INSTRUMENTATION: Runoff - precalibrated V-notch weir for low flows, current meter rated section for high flows, 24 hr. chart; precipitation - recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Cultivated - 38%, common rotation is corn, small grain, and hay; forest - 12%, mixed, second growth, grazed; native pasture - 50%, usually good cover of blue grass, broom sedge, other grasses, and white clover.

GENERALLY REPRESENTS: Mixed farming and forested areas of the Appalachian Valley and Ridges problem area; well drained valley land; rolling topography.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Staunton, Va., Bell Creek Watershed W-II**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1948 P Q							1.39 0	3.71 0	3.90 0	4.05 .03	4.77 .04	4.68 .22	22.50 .29
1949 P Q	4.39 .38	1.26 .32	1.78 .12	3.46 .43	4.38 .12	9.54 .60	6.93 .71	6.58 .40	1.15 .12	3.24 .04	1.94 .14	1.46 0	46.11 3.38
1950 P Q	2.45 .01	2.03 .06	2.59 .05	1.36 .03	4.99 .02	1.52 .01	2.43 0	.71 0	4.29 0	.78 0	2.32 0	3.42 .01	28.89 .19
1951 P Q	2.07 0	2.46 .03	3.11 .02	3.99 .06	2.02 *.02	4.26 .01	5.98 .02	1.99 0	1.76 0	.56 0	2.96 0	4.53 0	35.69 0.16
1952 P Q	4.70 .02	2.66 .03	4.20 .10	5.06 .18	3.94 .33	1.59 .06	1.73 0	7.17 0	1.77 0	.92 0	3.79 0	2.47 0	40.00 .72
1953 P Q	2.32 .01	2.46 .01	4.97 .06	2.60 .02	2.61 0	4.15 0	2.62 0	2.45 0	1.26 0	.42 0	.54 0	2.46 0	28.86 .10
1954 P Q	2.42 0	2.08 0	3.84 0	1.53 0	3.59 0	3.01 0	2.65 0	3.02 0	.94 0	6.03 .06	3.13 .01	3.45 .02	35.69 .10
1955 P Q	.34 0	2.60 .44	3.85 .03	2.24 0	2.33 0	3.90 .01	3.65 0	7.38 0	1.79 0				28.08 .47
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** Av. P	3.06	2.16	3.41	3.00	3.59	4.01	3.72	3.65	1.86	1.99	2.45	2.97	35.87
** Av. Q	.07	.07	.06	.12	.08	.11	.12	.07	.02	.02	.02	.01	.77
Normal P	2.84	2.34	3.14	3.02	3.30	4.22	4.23	4.09	2.85	2.96	2.09	2.64	37.72

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1948 and 1955. Normal P based on 69 yrs. W. B. records (1886-1954) at Staunton D. B. Institution, Staunton, Va. Quality of records; P - fair, Q - fair.

LOCATION: Augusta Co., Va.; 5 mi. N. W. of Staunton; Middle River Basin.

AREA: 6144 ac. (9.60 sq. mi.)

SHAPE: Roughly rectangular, about 2.0 mi. wide by 5.0 mi. long.

SLOPES: 1% is in 0-2% class; 18% in 2-6%; 32% in 6-15%; 47% in 15-25%; 2% in 25-45%. Aspect N-NE.

SOILS: Topsoil - mostly moderately fine textured, 6 to 10 in. deep; subsoil - moderately rapid permeability, effective depth - 36 to 60 in.; underlying materials - cherty limestone and sandstone. Frederick silty clay loam - 52%; Lodi fine sandy loam - 29%; various silt loams - 14%; stony loam - 5%.

EROSION: + - 4%; 1 - 11%; 2 - 81%; 3 - 4%.

LAND CAPABILITY: I - 1%; II - 18%; III - 31%; IV - 45%; VI - 1%; VII - 4%.

SURFACE DRAINAGE: Good; principal waterway - 5.5 mi.

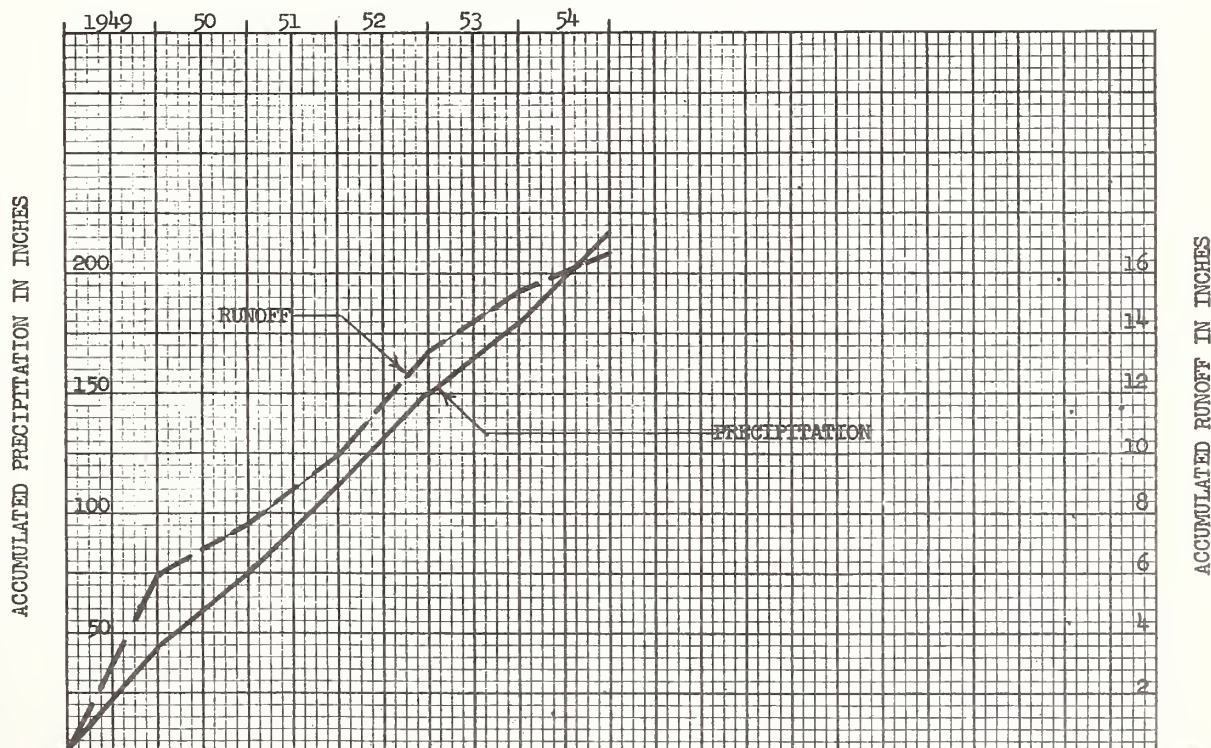
CHARACTER OF FLOW: Perennial, interrupted.

INSTRUMENTATION: Runoff - current meter rated section for all discharges; Stevens recorder, 2 in. = 1 ft., 1 in. = 10 hrs.; precipitation - recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Cultivated - 30%, common rotation is corn, small grain, and hay; forest - 15%, mixed, second growth, grazed; native pasture - 55%, usually good cover of blue grass, broom sedge, other grasses, and white clover.

GENERALLY REPRESENTS: Mixed farming and forested areas of the Appalachian Valley and Ridges problem area; well drained valley land; rolling topography.

ACCUMULATED PRECIPITATION AND RUNOFF





**MONTHLY PRECIPITATION AND RUNOFF (Inches) Staunton, Va., Bell Creek Watershed, W.I.I.**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1948 P							1.64	4.24	4.30	3.79	<sup>a</sup> 4.77	<sup>a</sup> 4.68	23.42
Q							.06	.05	.04	.32	*.31	.87	1.65
1949 P	<sup>a</sup> 4.39	<sup>a</sup> 1.26	<sup>a</sup> 1.78	3.22	4.45	8.25	5.60	6.83	1.53	3.31	<sup>a</sup> 1.94	<sup>a</sup> 1.46	44.02
Q	.82	.53	.25	.54	.26	.84	1.29	.58	.28	.13	.32	.11	5.95
1950 P	<sup>a</sup> 2.45	<sup>a</sup> 2.03	<sup>a</sup> 2.59	1.80	5.57	2.08	2.13	.86	4.75	.85	<sup>a</sup> 2.32	<sup>a</sup> 3.42	30.85
Q	.14	.47	.30	.18	.18	.08	.03	.03	.03	.01	.02	.20	1.67
1951 P	<sup>a</sup> 2.07	<sup>a</sup> 2.46	<sup>a</sup> 3.11	3.70	2.10	5.16	5.63	2.54	1.49	<sup>a</sup> .56	<sup>a</sup> 2.96	<sup>a</sup> 4.53	36.31
Q	.05	.35	.35	.45	.12	.15	.37	.08	.03	.02	.02	.26	2.25
1952 P	<sup>a</sup> 4.70	<sup>a</sup> 2.66	<sup>a</sup> 4.20	<sup>a</sup> 5.06	3.46	1.49	1.62	5.93	1.89	.76	<sup>a</sup> 3.79	<sup>a</sup> 2.47	38.03
Q	.55	.61	.65	.54	.54	.14	.06	.05	.06	.03	.12	.14	3.49
1953 P	<sup>a</sup> 2.32	<sup>a</sup> 2.46	<sup>a</sup> 4.97	2.29	2.59	4.71	2.83	2.88	1.92	<sup>a</sup> .42	<sup>a</sup> .54	<sup>a</sup> 2.46	30.39
Q	.32	.22	.62	.27	.12	.07	.05	.02	.01	*.01	.03	*.03	1.77
1954 P	<sup>a</sup> 2.42	<sup>a</sup> 2.08	<sup>a</sup> 3.84	<sup>a</sup> 1.53	<sup>a</sup> 3.59	<sup>a</sup> 3.01	2.04	3.06	1.62	<sup>a</sup> 6.03	<sup>a</sup> 3.13	<sup>a</sup> 3.45	35.80
Q	.05	.07	.28	.09	.09	.06	.02	.01	.01	.26	.19	.32	1.45
1955 P	<sup>a</sup> .34	<sup>a</sup> 2.60	<sup>a</sup> 3.85	<sup>a</sup> 2.24	<sup>a</sup> 2.33	<sup>a</sup> 3.90	<sup>a</sup> 3.65	<sup>a</sup> 7.38	<sup>a</sup> 1.79				28.08
Q	.20	.29	.52	.16	.09	.13	.08	.69	.11				2.27
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** Av. P	3.06	2.16	3.41	2.93	3.63	4.12	3.31	3.68	2.20	1.99	2.45	2.96	35.90
** Av. Q	.32	.37	.41	.34	.22	.22	.30	.13	.07	.08	.12	.17	2.76
Normal P	2.84	2.34	3.14	3.02	3.30	4.22	4.23	4.09	2.85	2.96	2.09	2.64	37.72

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1948 and 1955. <sup>a</sup>Monthly total from R-2, R-3 operating during summer months only. Normal P based on 69 yrs. W. B. records (1886-1954) at Staunton D. & B. Institution, Staunton, Va. Quality of records; P - fair, Q - fair.

LOCATION: Madison Co., Ill.; 6 mi. N.E. of Edwarsville; Cahokia Creek, Mississippi River Basin.

AREA: 27.22 ac.

SHAPE: Fan shaped; 1,100 ft. radius; length of arc, 2,200 ft.

SLOPES: 63% is in 0-1 $\frac{1}{2}$ % class; 21% in 1 $\frac{1}{2}$ -4%; 9% in 4-7%; 7% in 7-12%. Aspect NW.

SOILS: Loessial over glacial till; topsoil - medium textured, crumb structure, moderately deep (12-18 in.); subsoil - tight, dense silty clay which limits permeability; internal drainage - slow to very slow. Alma silt loam - 18%, Bogota silt loam - 81%; Haymond very fine sandy loam - 1%.

EROSION: 1 - 85%; 2 - 15%.

LAND CAPABILITY: II - 84%; III - 16%.

SURFACE DRAINAGE: Good; principal waterway 785 ft.; main waterway has two branches, each draining about half the area, overland flow on upper half of area.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broadcrested concrete weir with 2:1 side slopes, continuous water stage recorder; precipitation - recording gages; 1 gage Mar. 1938-Sept. 1941, and Aug. 1943-55; 4 gages Oct. 1941-July 1943.

WATERSHED CONDITIONS: Prior to 1938 - generally farmed in 3 yr. rotation of corn, winter wheat, alfalfa, or sweet clover; 1938-39 - corn not on contour and winter wheat; 1940-43 - alfalfa hay; 1944-55 - corn, winter wheat, hay. Crop yields fair except for 1954 when corn was almost a complete failure.

GENERALLY REPRESENTS: Upland cultivated areas having good surface drainage, but slow internal drainage and moderate erosion, of the Central Claypan area in S Illinois, S Indiana, NE and SW Missouri, and E Kansas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Illinois Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Edwardsville, Ill., Watershed W-1**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P			9.57	2.65	6.29	4.50	6.25	1.50	1.37	1.04	3.22	1.90	38.29
Q			4.85	.84	1.23	.61	1.72	.01	0	0	.03	T	9.29
1939 P	3.90	2.92	1.67	4.18	2.19	3.71	5.41	9.64	.82	1.47	2.19	.98	39.08
Q	1.21	1.88	.67	1.54	.01	.06	.77	3.20	0	0	0	0	9.34
1940 P	1.15	1.01	1.80	4.12	1.82	1.89	.36	5.91	0	2.09	2.68	2.77	25.60
Q	*.20	.06	.05	.68	.13	.01	0	.51	0	.02	.02	.04	1.72
1941 P	2.09	.44	.64	4.69	1.59	3.97	2.60	2.27	5.55	8.16	3.25	.98	36.23
Q	.09	0	0	.54	0	.04	.31	.01	.40	1.01	.78	.01	3.19
1942 P	1.21	2.74	2.04	2.15	5.27	7.54	8.02	3.61	1.45	2.77	5.10	3.18	45.08
Q	*.04	.90	.23	.34	.10	1.31	3.50	.46	T	.08	.93	1.87	9.76
1943 P	.45	.82	2.78	2.06	11.32	5.31	2.00	.70	1.99	2.64	1.05	1.47	32.59
Q	.01	.30	.90	0	6.70	*1.16	T	0	0	0	0	0	9.07
1944 P	.21	1.92	2.47	8.56	4.67	1.36	2.38	4.31	2.69	.64	2.08	1.15	32.44
Q	T	.09	.05	5.23	.21	0	T	.17	.03	.01	.01	0	5.80
1945 P	.67	2.33	*8.94	4.72	3.27	8.60	.56	2.74	7.50	2.23	2.77	1.83	46.16
Q	.24	.19	5.02	*1.95	.44	3.97	.01	.03	.44	.62	.46	*1.06	14.43
1946 P	1.49	2.41	4.12	2.34	5.37	1.57	2.10	15.65	1.25	4.08	8.35	2.46	51.19
Q	1.06	1.59	1.85	.04	1.23	.01	0	8.07	0	.16	5.76	1.35	21.12
1947 P	1.53	.20	1.93	6.50	3.23	*3.05	*3.44	*.86	*2.48	4.45	2.02	2.07	*31.76
Q	1.32	0	.36	3.37	.17	0	*.60	0	0	.07	.04	.13	6.06
1948 P	.80	1.27	5.54	1.43	4.09	4.94	8.77	.73	2.59	3.84	3.16	1.50	38.66
Q	.29	1.03	2.97	.12	.29	.36	3.10	0	.11	.12	.43	.23	9.05
1949 P	6.02	2.71	1.26	1.14	6.51	6.22	3.28	2.73	3.11	6.22	.28	4.64	44.12
Q	4.29	1.86	.29	.03	1.31	1.76	.18	.80	.23	1.14	0	1.57	13.46
1950 P	7.89	3.41	3.58	4.45	3.46	4.70	2.28	3.20	1.53	1.44	2.83	.55	39.32
Q	6.98	*1.83	1.54	1.30	.38	*1.33	.02	0	0	0	.09	T	13.47
1951 P	1.37	5.06	2.63	2.44	2.05	8.96	4.15	2.65	3.40	2.31	2.10	1.89	39.01
Q	.06	3.33	.98	*.70	T	2.05	1.81	.18	.10	.01	.31	.03	9.56
1952 P	.95	2.22	6.13	3.62	1.64	4.75	7.23	3.34	.81	.36	3.07	1.43	35.55
Q	.16	.67	3.93	2.43	T	*2.17	1.55	.04	0	0	.02	0	10.97
1953 P	1.12	2.12	3.94	3.48	*2.38	3.47	.90	.85	.55	1.40	.83	.63	21.67
Q	T	.03	.71	.86	.13	.76	0	0	0	0	0	0	2.49
1954 P	1.60	.71	1.32	3.98	2.46	2.97	1.97	4.23	2.82	5.91	.69	1.56	30.22
Q	0	0	0	.08	0	.19	.46	.22	.50	1.43	0	.05	2.93
1955 P	1.57	3.04	1.59	3.06	1.80	2.91	4.62	4.11	4.00	4.15	1.51	.13	32.49
Q	.11	1.00	.01	.22	0	T	.36	.71	.26	.06	.02	0	2.75
P													
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Q													
**Av. P	2.00	2.08	3.08	3.70	3.72	4.46	3.54	3.97	2.50	3.18	2.58	1.72	36.53
**Av. Q	.94	.87	1.15	1.14	.65	.89	.74	.85	.12	.28	.52	.37	8.52
Normal P	2.64	2.48	3.52	4.07	4.37	4.43	3.21	3.32	3.39	3.04	2.96	2.47	39.90

**Notes:** \* Partially estimated. \*\*Does not include part year amounts for 1938. Normal P based on 72 yr. record (1883-1954) at Greenville, Ill. Months of Jan., Feb. and March include snow and snow melt. Quality of records: P - good; Q - excellent.



LOCATION: Madison Co., Ill.; 6 mi. N.E. of Edwardsville; Cahokia Creek, Mississippi River Basin.

AREA: 49.95 ac.

SHAPE: Roughly oval, about 1,950 ft. wide by 2,600 ft. long.

SLOPES: 22% is in 0-1 $\frac{1}{2}$ % class; 30% in 1 $\frac{1}{2}$ -4%; 15% in 4-7%; 21% in 7-12%; 8% in 12-18%; 4% in 18-30%.  
Aspect N-NW.

SOILS: Loessial over glacial till; topsoil - medium textured, crumb structure, moderately deep (12-20 in.); subsoil - tight, dense silty clay which limits permeability; internal drainage - slow to very slow. Alma silt loam - 13%; Bogota silt loam - 60%; Elcho silt loam - 22%; Haymond very fine sandy loam - 5%.

EROSION: 1 - 73%; 2 - 22%; + - 5%.

LAND CAPABILITY: II - 49%; III - 35%; IV - 11%; VI - 5%.

SURFACE DRAINAGE: Good; principal waterway - 1,650 ft.; area well dissected with waterways; main waterway 50-75 ft. wide for 500 ft. upstream from weir.

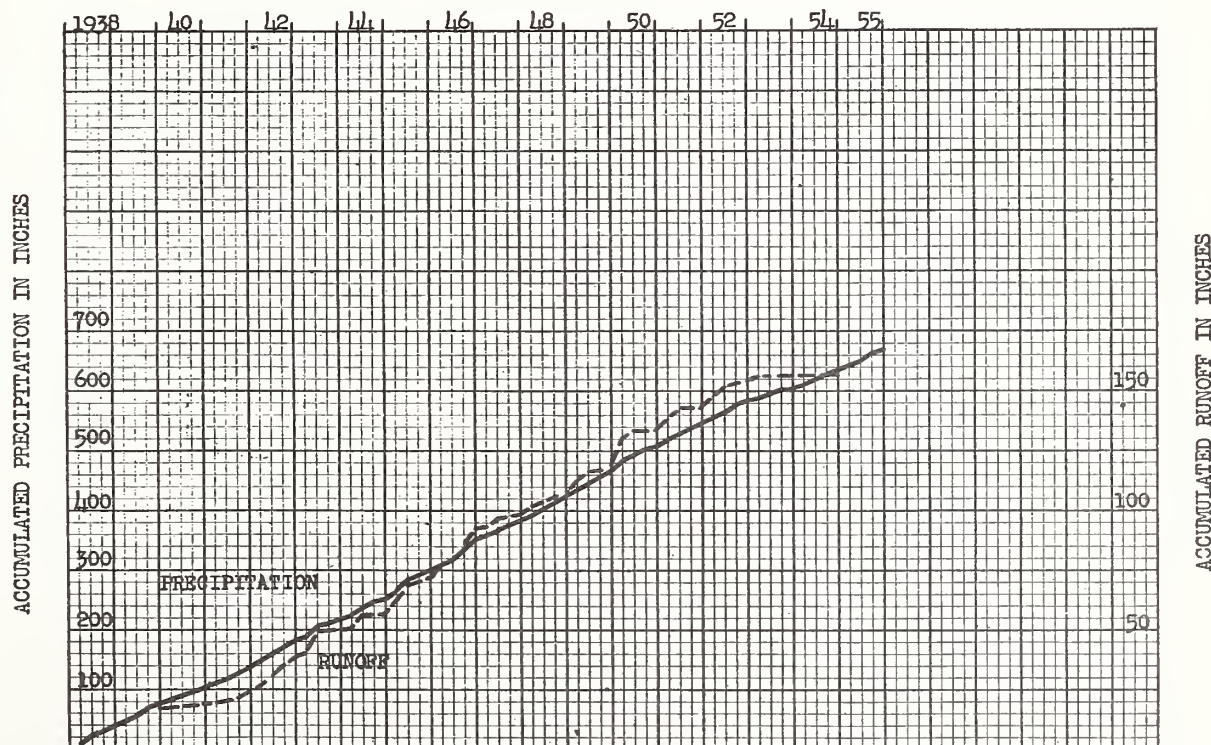
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broadcrested concrete weir with 3:1 side slopes, continuous water stage recorder; precipitation - recording gages; 1 gage Oct. 1947-55; 2 gages Mar. 1938-Sept. 1941, and Aug. 1943-June 1947; 4 gages Oct. 1941-July 1943.

WATERSHED CONDITIONS: Prior to 1938 - approximately half the area was in 3 yr. rotation of corn, winter wheat, hay, balance in pasture; 1938-39 - cultivated portion - wheat seeded to pasture; 1940-43 - pasture; 1944-45 - 10% of area cultivated; 1946-55 - 25% cultivated in 3 yr. rotation corn, winter wheat, hay. Crop yields fair except for 1954 when corn was almost a complete failure.

GENERALLY REPRESENTS: Upland pasture areas having good surface drainage, but slow internal drainage and moderate erosion, of the Central Claypan areas in S Illinois, S Indiana, NE and SW Missouri, and E Kansas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Illinois Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Edwardsville, Ill., Watershed W-2**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P			9.68	2.64	6.09	4.18	5.87	1.36	1.36	1.06	3.34	1.91	37.49
Q			5.28	.82	1.50	.53	1.55	0	0	0	.04	T	9.72
1939 P	4.02	3.04	1.79	4.02	2.28	3.50	5.72	9.30	.85	1.54	2.25	.98	39.29
Q	.60	1.28	.61	1.43	.04	.03	.64	2.72	0	0	0	0	7.35
1940 P	1.10	1.14	1.87	4.16	1.86	2.09	.35	6.32	0	2.12	2.68	2.77	26.46
Q	*.20	.07	.21	.69	.15	.01	0	.56	0	.01	.03	.06	1.99
1941 P	2.09	.45	.73	4.66	1.58	3.78	2.66	2.39	4.89	8.28	3.13	.93	35.57
Q	.19	0	T	.94	.03	.02	.27	.01	.32	1.67	1.37	.14	4.96
1942 P	1.18	2.79	1.98	2.15	5.08	7.74	8.02	3.61	1.47	2.64	5.15	3.49	45.30
Q	.16	1.66	.82	.76	.52	2.39	3.96	.83	0	.09	1.01	2.13	14.33
1943 P	.53	.76	2.96	1.99	11.15	5.46	1.96	.66	1.93	2.75	1.16	1.61	32.92
Q	0	.35	1.42	.18	8.18	1.61	T	0	0	0	0	0	11.74
1944 P	.23	2.31	2.75	9.13	5.00	1.47	2.42	4.44	2.74	.56	2.18	1.42	34.65
Q	0	.07	.24	5.44	.94	0	0	.18	.01	0	.04	0	6.92
1945 P	.76	2.73	9.02	4.87	3.45	8.93	.60	2.92	7.74	1.67	2.77	1.83	47.29
Q	.07	.24	4.40	2.29	1.05	4.38	0	.04	.50	.28	.53	*1.01	14.79
1946 P	1.72	2.57	4.11	2.46	5.44	1.56	2.08	15.92	1.40	4.23	8.52	2.42	52.43
Q	1.08	1.65	2.06	.11	1.49	.02	0	*7.46	0	.27	5.08	1.52	20.74
1947 P	1.76	.28	2.31	6.54	3.14	*3.05	*3.44	*.86	*2.48	4.44	1.98	2.10	*32.38
Q	.13	.11	.71	4.05	.33	0	*.75	0	0	0	T	*.06	6.14
1948 P	.88	1.24	5.56	1.34	4.06	4.76	8.50	.76	2.60	3.89	3.14	1.55	38.28
Q	*.20	*1.24	2.27	.28	.52	.22	1.82	0	.01	.02	.29	*.15	7.02
1949 P	6.03	2.74	1.28	1.06	6.16	6.53	3.49	2.89	2.99	6.37	.26	4.80	44.60
Q	4.22	2.02	.46	.22	1.60	1.52	.13	.54	0	.91	0	1.67	13.29
1950 P	7.78	3.26	3.70	4.44	3.63	4.84	2.28	3.11	1.55	1.40	2.85	.50	39.34
Q	7.21	2.21	2.09	1.81	.38	1.02	0	0	0	0	.04	.01	14.77
1951 P	1.54	5.11	2.52	2.49	2.14	8.68	4.00	2.65	3.49	2.35	2.41	1.87	39.25
Q	.02	3.09	1.35	1.11	.03	1.71	1.06	*.10	.14	.07	.35	.04	9.07
1952 P	1.01	2.15	6.10	3.78	1.69	4.95	7.48	3.26	.81	.38	3.15	1.43	36.19
Q	.24	.94	3.91	2.12	.01	2.02	1.75	.03	0	0	0	0	11.02
1953 P	1.27	2.12	3.85	4.41	2.71	3.50	.95	1.10	.58	1.58	.84	.63	23.54
Q	T	.08	.64	.75	.13	.44	0	0	0	0	0	0	2.04
1954 P	1.66	.65	1.30	3.75	2.59	3.05	1.93	4.42	3.00	6.21	.67	1.47	30.70
Q	0	0	0	0	0	T	*.13	0	.01	*.42	0	*.05	.61
1955 P	1.60	3.18	1.60	3.20	2.04	2.91	4.99	4.09	3.94	4.06	1.58	.14	33.33
Q	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
P													
Q													
P													
Q													
**Av. P	2.06	2.15	3.14	3.78	3.76	4.51	3.58	4.05	2.50	3.20	2.63	1.76	37.12
***Av. Q	.90	.94	1.32	1.38	.96	.96	.66	.78	.06	.23	.55	.43	9.17
Normal P	2.64	2.48	3.52	4.07	4.37	4.43	3.21	3.32	3.39	3.04	2.96	2.47	39.90

**Notes:** \* Partially estimated. \*\*Does not include part year amounts for 1938. \*\*\*Does not include 1938 and 1955. Normal P based on 72 yr. record (1883-1954) at Greenville, Ill. Months of Jan., Feb. and March include snow and snow melt. NR - no record, weir undermined and station not operated. Quality of records: P - excellent; Q - excellent.



LOCATION: Madison Co., Ill.; 6 mi. N.E. of Edwardsville; Cahokia Creek, Mississippi River Basin.

AREA: 12.55 ac.

SHAPE: Roughly rectangular, about 500 ft. wide by 1,100 ft. long.

SLOPES: 14% is in  $1\frac{1}{2}$ -4% class; 67% in 4-7%; 19% in 7-12%. Aspect SE.

SOILS: Loessial over glacial till; topsoil - medium textured, crumb structure, moderately deep (5-12 in.); subsoil - tight, dense silty clay which limits permeability; internal drainage - slow to very slow. Alma silt loam - 89%; Bogota silt loam - 11%.

EROSION: 1 - 60%; 2 - 40%.

LAND CAPABILITY: II - 14%; III - 86%.

SURFACE DRAINAGE: Good; principal waterway - 450 ft.; six terraces from 1,050 to 1,390 ft. long with an average grade of 0.3%; all terraces enter the outlet channel from one side; sod outlet channel 450 ft. long with average grade of 6%.

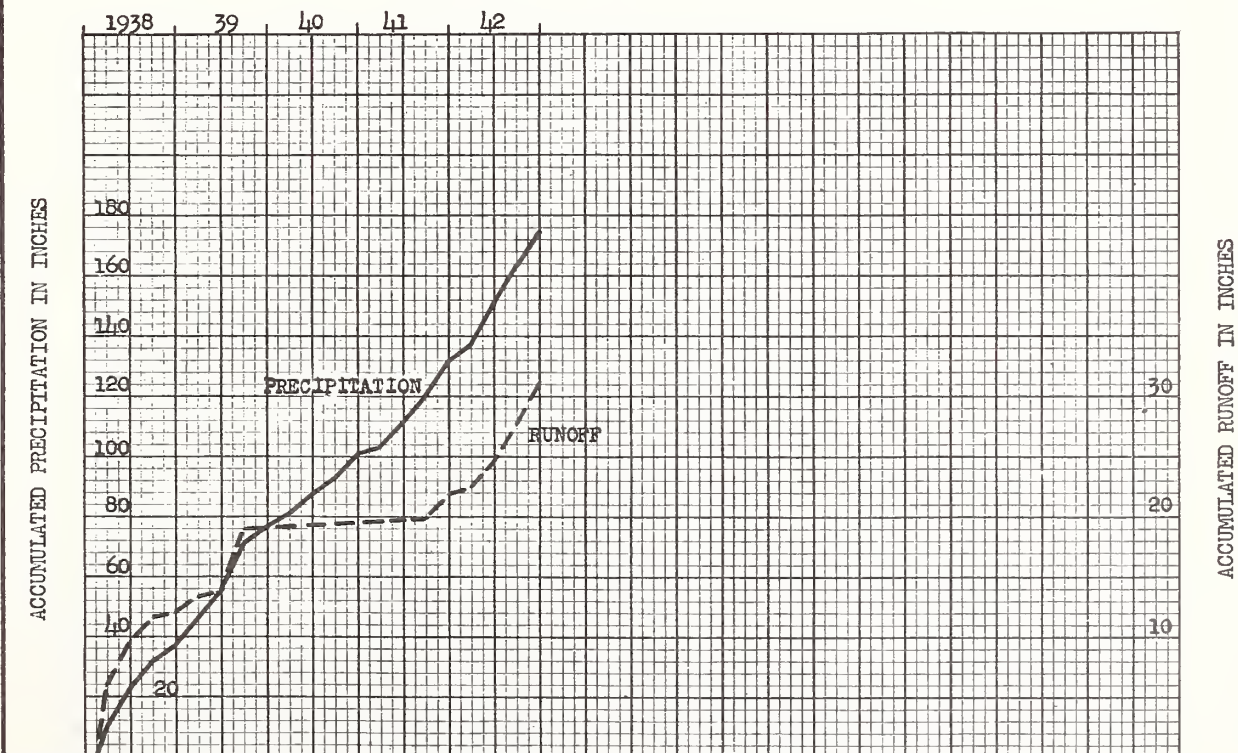
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broadcrested concrete weir with 2:1 side slopes, continuous water stage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Terraced in 1937 and in corn; 1938 - winter wheat seeded to sweet clover; 1939 - corn followed by winter wheat; 1940-41 - winter wheat; 1942 - two-thirds oats, one-third idle.

GENERAL REPRESENTS: Terraced cultivated areas having good surface drainage, but slow internal drainage and moderate erosion, of the Central Claypan area in S Illinois, S Indiana, NE and SW Missouri, and E Kansas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Illinois Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Edwardsville, Ill., Watershed W-3**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P			10.61	2.41	5.79	3.76	5.64	0.66	1.41	0.85	3.53	2.35	37.01
Q			6.48	.64	*1.60	.77	2.14	0	0	0	.23	.18	12.04
1939 P	4.00	2.81	1.83	4.03	2.21	3.29	6.03	9.83	.75	1.60	2.14	.87	39.39
Q	.61	.35	.19	*.44	.01	.23	1.67	3.51	0	0	0	0	7.01
1940 P	1.09	1.17	2.16	3.53	1.80	1.68	.33	4.83	0	1.91	3.06	2.69	24.25
Q	T	T	.15	.10	.01	T	0	.08	0	0	.09	.11	.54
1941 P	1.94	.39	.63	4.79	1.67	2.02	1.98	2.11	3.69	8.28	3.05	.91	31.46
Q	.08	0	0	.04	0	0	.03	0	0	1.52	.77	.01	2.45
1942 P	1.13	2.68	1.77	1.96	4.50	6.69	6.93	3.18	2.36	2.46	5.07	3.15	41.88
Q	.02	.35	.09	.18	.46	1.34	2.72	.53	.02	.02	1.69	1.64	9.06
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** Av. P	2.04	1.76	3.40	3.34	3.19	3.49	4.18	4.12	1.64	3.02	3.37	1.99	35.54
** Av. Q	.18	.27	1.38	.28	.42	.47	1.31	.82	T	.31	.56	.39	6.39
Normal P	2.64	2.48	3.52	4.07	4.37	4.43	3.21	3.32	3.39	3.04	2.96	2.47	39.90

**Notes:** \* Partially estimated. Normal P based on 72 yr. record (1883-1954) at Greenville, Ill.  
Months of Jan. Feb. and March include snow and snow melt. Quality of records: P - good;  
Q - excellent. \*\* Av. P and Q based on entire period of record.

**LOCATION:** Madison Co., Ill.; 6 mi. N.E. of Edwardsville; Cahokia Creek, Mississippi River Basin.

**AREA:** 289.8 ac.

**SHAPE:** Oval; about 3,500 ft. wide by 4,300 ft. long.

**SLOPES:** 28% is in 0-1½% class; 31% in 1½-4%; 17% in 4-7%; 9% in 7-12%; 12% in 12-18%; 3% in 18-30%.

**SOILS:** Loessial over glacial till; topsoil - medium textured, crumb structure, moderately deep (12-20 in.); subsoil - tight, dense silty clay which limits permeability; internal drainage - slow to very slow. Alma silt loam - 14%; Bogota silt loam - 52%; Elcho silt loam - 22%; Whitson silt loam - 6%; Haymond very fine sandy loam - 6%.

**EROSION:** 1 - 83%; 2 - 12%; + - 5%.

**LAND CAPABILITY:** II - 57%; III - 22%; IV - 18%; VI - 3%.

**SURFACE DRAINAGE:** Good; principal waterway - 4,850 ft.; 1938-47 - 4 ponds, contributing area - 30 ac., permanent volume - 7 ac. ft., temporary storage above spillway - 6 ac. ft.; 1948-54 - 5 ponds, contributing area - 35 ac., permanent volume - 8 ac. ft., temporary storage above spillway - 6.5 ac. ft.

**CHARACTER OF FLOW:** Ephemeral, continuous.

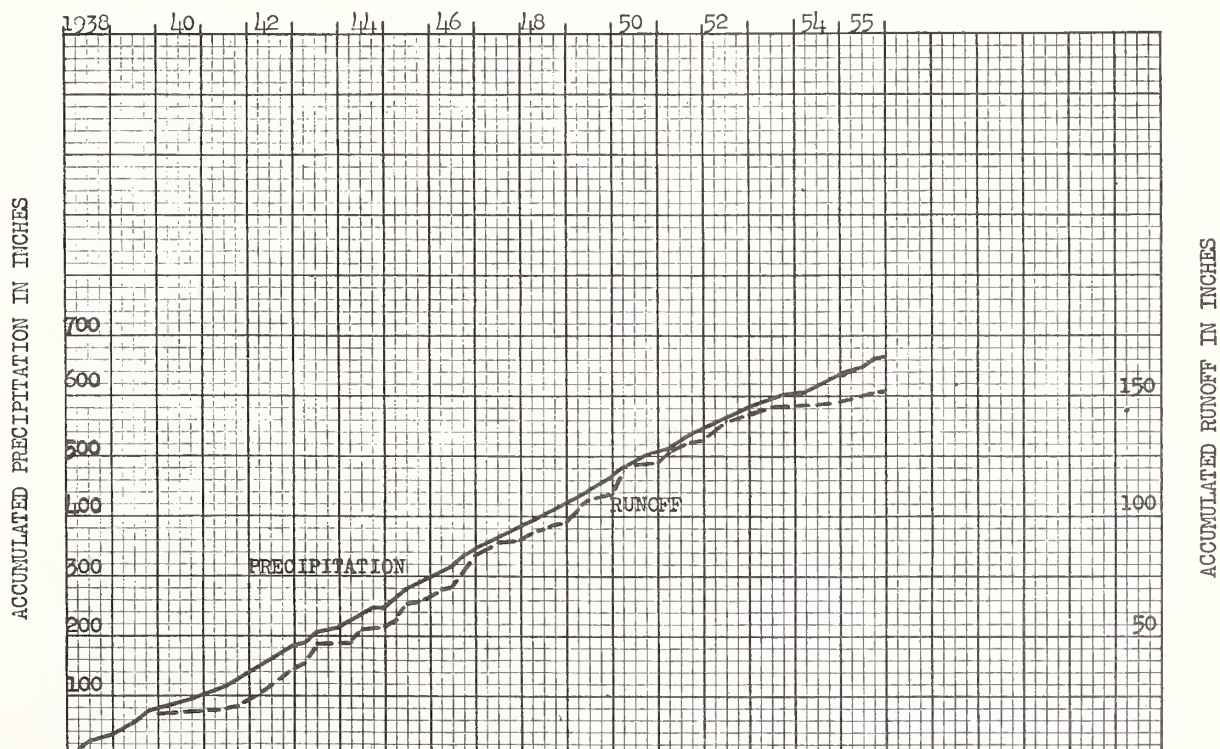
Corrections made for effect of ponds.

**INSTRUMENTATION:** Runoff - 30" broadcrested concrete weir with 5:1 side slopes, continuous water stage recorder; precipitation - recording gages; 7 stations prior to 1947; 5 stations 1947-55.

**WATERSHED CONDITIONS:** Prior to 1940 - 55% of the area was in 3 yr. rotation of corn, winter wheat, and hay; 1940-43 - the percent of area under crop rotation was 34; 1944-55 - 46% of the area under cultivation in the 3 yr. rotation; 5% of area in unpastured woods; contributing area above the ponds mostly in cultivation.

**WATERSHED CONDITIONS:** For the entire period of record, 10% of the area was in pastured woods and 5% in unpastured woods. 55% of the area was in a 3 yr. rotation of corn, winter wheat, and hay in 1938-39; 34% in 1940-43; and 46% in 1944-55. Balance of area in pasture. Contributing area above ponds mostly in cultivation.

#### ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Edwardsville, Ill., Watershed W-4**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P			9.99	2.69	6.30	4.45	5.74	1.37	1.41	1.09	3.34	1.94	38.32
Q			*5.28	.88	1.36	.62	1.36	T	0	0	.06	.01	9.57
1939 P	4.06	3.03	1.80	4.11	2.19	3.62	5.70	9.37	.80	1.56	2.26	.98	39.48
Q	.74	1.34	.63	*1.34	.08	.11	.75	2.52	0	0	T	T	7.51
1940 P	1.13	1.16	1.92	4.15	1.84	2.01	.35	6.57	0	2.13	2.70	2.77	26.73
Q	.23	*.06	.18	.47	.16	.01	0	.77	0	.02	.03	.05	1.98
1941 P	2.09	.45	.71	4.72	1.54	3.86	2.65	2.28	5.00	8.20	3.04	.93	35.47
Q	.15	.01	0	.74	.02	.10	.34	.03	.36	1.24	1.01	.13	4.13
1942 P	1.19	2.90	1.91	2.15	5.08	7.67	7.72	3.53	1.53	2.60	4.97	3.41	44.66
Q	*.09	1.39	.69	.76	.60	2.36	3.49	.70	.01	.10	.94	1.96	13.09
1943 P	.51	.74	2.95	2.06	10.99	5.46	1.88	.68	1.95	2.69	1.14	1.58	32.63
Q	.04	.32	1.20	.22	7.00	1.64	.01	0	0	T	T	0	10.43
1944 P	.23	2.12	2.67	9.07	4.89	1.44	2.43	4.43	2.74	.57	2.15	1.32	34.06
Q	T	.13	.21	4.75	.90	T	.02	.23	.05	T	.03	0	6.32
1945 P	.73	2.58	9.09	4.84	3.39	8.75	.56	2.92	7.74	1.84	2.75	1.87	47.06
Q	.19	.25	4.01	1.93	*.90	*3.62	.02	.06	.44	.31	.42	.69	12.84
1946 P	1.64	2.52	4.08	2.42	5.44	1.60	2.06	16.21	1.42	4.20	8.46	2.43	52.48
Q	.83	1.29	1.80	.14	1.37	.04	0	6.98	T	.18	4.33	1.29	18.25
1947 P	1.67	.23	2.17	6.50	3.22	*3.05	*3.44	*.86	*2.48	4.47	2.02	2.05	*32.16
Q	.91	0	.36	3.36	.43	0	*.55	0	0	.06	.02	.07	5.76
1948 P	.80	1.27	5.54	1.43	4.19	4.92	8.85	.77	2.71	3.97	3.22	1.50	39.17
Q	.21	1.28	2.10	.28	.50	.31	2.15	.01	.07	.09	.41	.18	7.59
1949 P	6.02	2.71	1.27	1.10	6.37	6.77	3.28	2.86	3.10	6.28	.26	4.64	44.66
Q	3.36	1.73	.55	.28	1.58	*1.82	.21	.48	.07	.76	.05	1.38	12.27
1950 P	7.86	3.37	3.66	4.45	3.58	4.92	2.27	3.21	1.55	1.44	2.89	.53	39.73
Q	6.02	1.89	1.74	1.45	.41	1.32	.02	0	T	0	.10	.02	12.97
1951 P	1.44	5.06	2.57	2.47	2.12	8.90	3.95	2.64	3.44	2.34	2.21	1.91	39.05
Q	0	*2.59	1.20	*1.01	.02	*1.89	1.05	.09	.13	.06	.33	.06	8.43
1952 P	1.00	2.20	6.19	3.68	1.65	4.47	7.59	3.32	.82	.37	3.13	1.45	35.87
Q	.18	1.28	3.58	2.74	.02	1.48	1.84	.08	0	0	.01	T	11.21
1953 P	1.17	2.12	3.93	4.10	2.57	3.48	.96	.98	.58	1.47	.83	.62	22.81
Q	.01	.17	.89	1.29	.44	.58	0	0	0	0	0	0	3.38
1954 P	1.63	.70	1.32	3.88	2.50	3.00	1.87	4.41	2.99	6.22	.70	1.56	30.78
Q	0	0	0	.05	0	.15	.15	.07	.34	1.17	0	.07	2.00
1955 P	1.59	3.09	1.59	3.09	1.94	2.90	4.62	4.02	3.98	4.01	1.57	.13	32.53
Q	.17	.87	.17	.37	.01	.02	.32	*.63	.19	.12	.04	T	2.91
P													
Q													
P													
Q													
** Av. P	2.04	2.13	3.14	3.78	3.73	4.52	3.54	4.06	2.52	3.20	2.60	1.75	37.01
** Av. Q	.77	.86	1.14	1.25	.85	.91	.65	.74	.10	.24	.45	.35	8.31
Normal P	2.64	2.48	3.52	4.07	4.37	4.43	3.21	3.32	3.39	3.04	2.96	2.47	39.90

Notes: \*Partially estimated. \*\*Does not include part year amounts for 1938. Normal P based on 72 yr. record (1883-1954) at Greenville, Ill. Months of Jan., Feb. and March include snow and snow melt. Quality of records: P - excellent; Q - good.



10-55

ELMWOOD, ILLINOIS

Watershed WB-1

LOCATION: Knox Co., Ill.; 5 mi. NNE. of Elmwood; Illinois River Basin.

AREA: 1.28 ac.

SHAPE: Roughly oval, about 225 ft. wide by 325 ft. long.

SLOPES: 100% is in 1-3% class. Aspect South.

SOILS: Gray Brown Podzolic - Argipan Intergrade; topsoil - medium textured, weak crumb structure, moderately shallow (13-19"); subsoil - moderately slow to slow permeability; internal drainage slow, imperfectly drained profile. Berwick Silt Loam - 100%.

EROSION: 1 - 100%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Poor. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 382 ft.

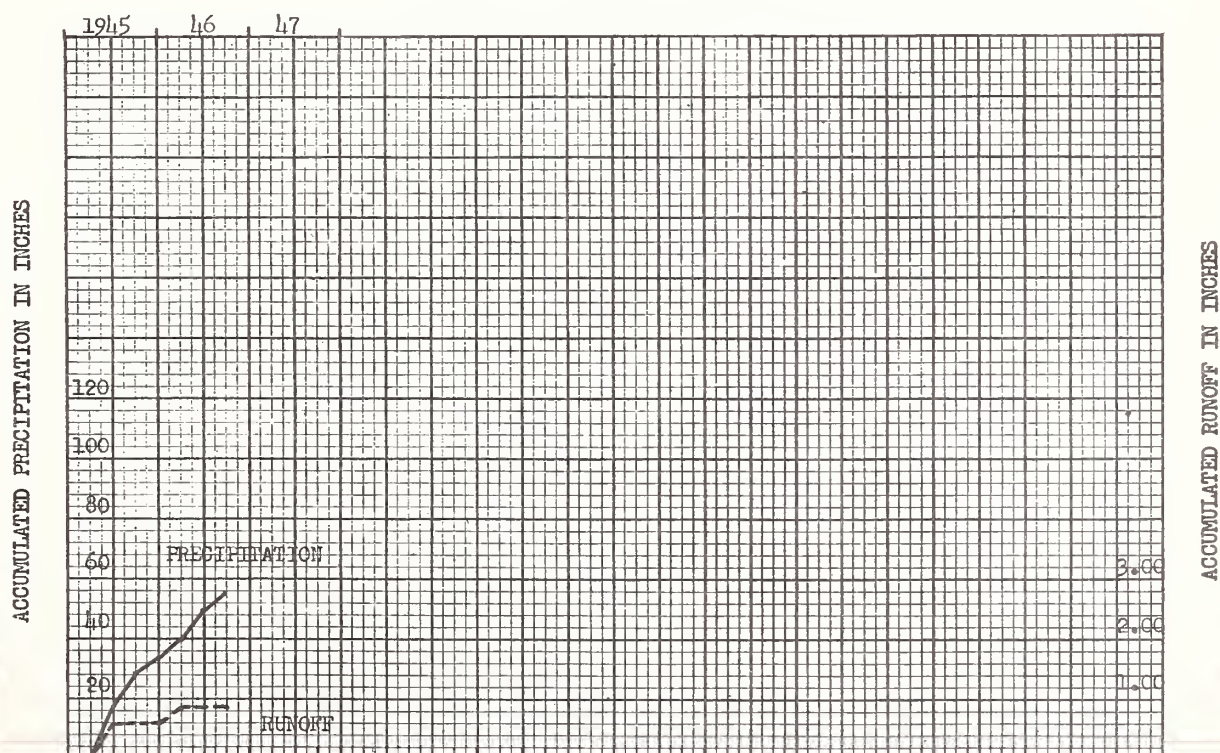
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - nonrecording and recording gages.

WATERSHED CONDITIONS: Permanent blue-grass pasture, good condition.

GENERALLY REPRESENTS: Pastured areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station

Elmwood, Ill., Watershed WB-1

Notes: No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.

10-55

ELMWOOD, ILLINOIS

Watershed WB-2

**LOCATION:** Knox Co., Ill.; 5 mi. NNE. of Elmwood; Illinois River Basin.

**AREA:** 2.28 ac.

**SHAPE:** Roughly rectangular, about 375 ft. wide by 325 ft. long.

**SLOPES:** 100% is in 1-3% class. Aspect North.

**SOILS:** Gray Brown Podzolic - Argipan Intergrade; topsoil - medium textured, weak crumb structure, moderately shallow (13-19"); subsoil - moderately slow to slow permeability; internal drainage slow, imperfectly drained profile. Berwick Silt Loam - 100%.

**EROSION:** 2 - 100%.

**LAND CAPABILITY:** III - 100%.

**SURFACE DRAINAGE:** Poor. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 412 ft.

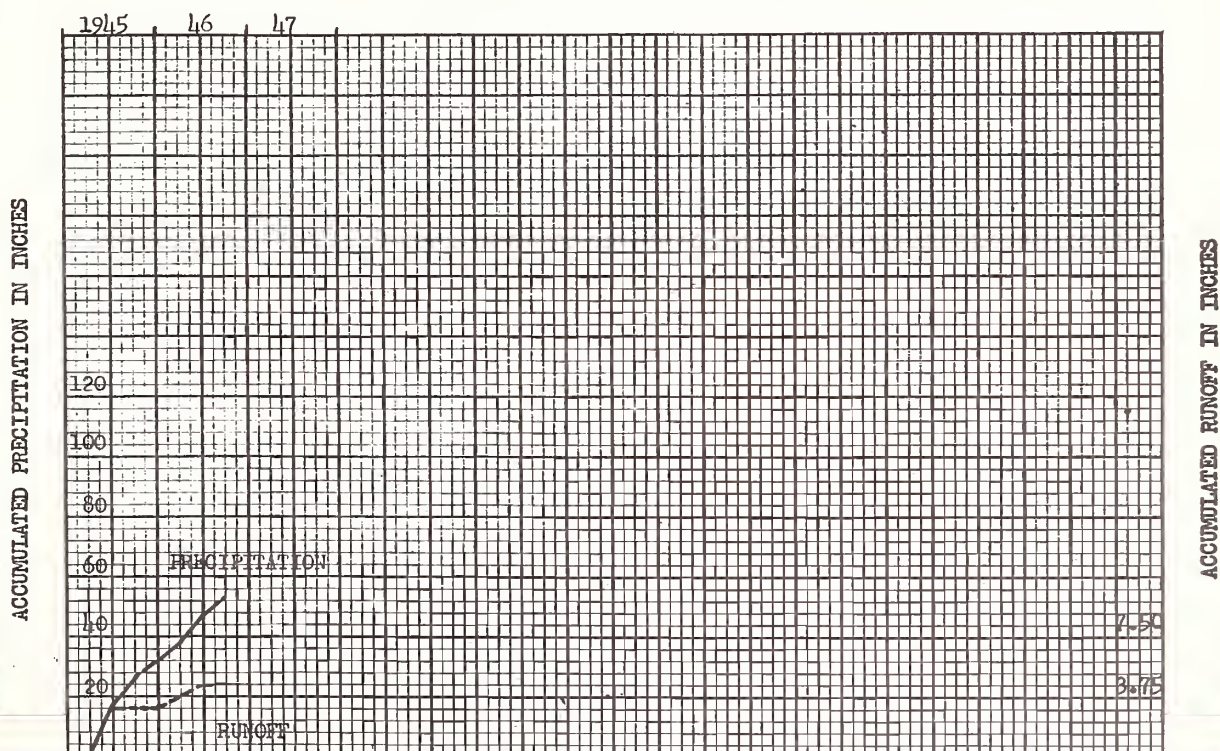
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.

**WATERSHED CONDITIONS:** First and second year corn after hay.

**GENERALLY REPRESENTS:** Cultivated areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Elmwood, Ill., Watershed WB-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945 P				4.38	7.06	6.50	0.75	1.34	6.77	1.19	1.71	1.79	31.99
Q				.05	.82	1.89	0	.02	.04	.03	.01	0	2.36
1946 P	3.19	0.35	2.79	.97	4.46	4.98	1.15	2.54	2.11				22.54
Q	.93	0	.07	0	.69	0	0	.01	.01				1.71
1													
Q													
P													
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Normal P	1.97	1.91	2.79	3.44	3.94	3.88	3.70	2.99	3.73	2.44	2.35	2.04	35.18

**Notes:** No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.

10-55

ELMWOOD, ILLINOIS

Watershed WB-3

**LOCATION:** Peoria Co., Ill.; 7.5 mi. NE. of Elmwood; Illinois River Basin.

**AREA:** 2.61 ac.

**SHAPE:** Roughly rectangular, about 300 ft. wide by 575 ft. long.

**SLOPES:** 100% is in 1-3% class. Aspect South.

**SOILS:** Gray Brown Podzolic - Argipan Intergrade; topsoil - medium textured, weak crumb structure, moderately shallow (13-19"); subsoil - moderately slow to slow permeability; internal drainage slow, imperfectly drained profile. Berwick Silt Loam - 100%.

**EROSION:** 2 - 100%.

**LAND CAPABILITY:** III - 100%.

**SURFACE DRAINAGE:** Fair. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 471 ft.

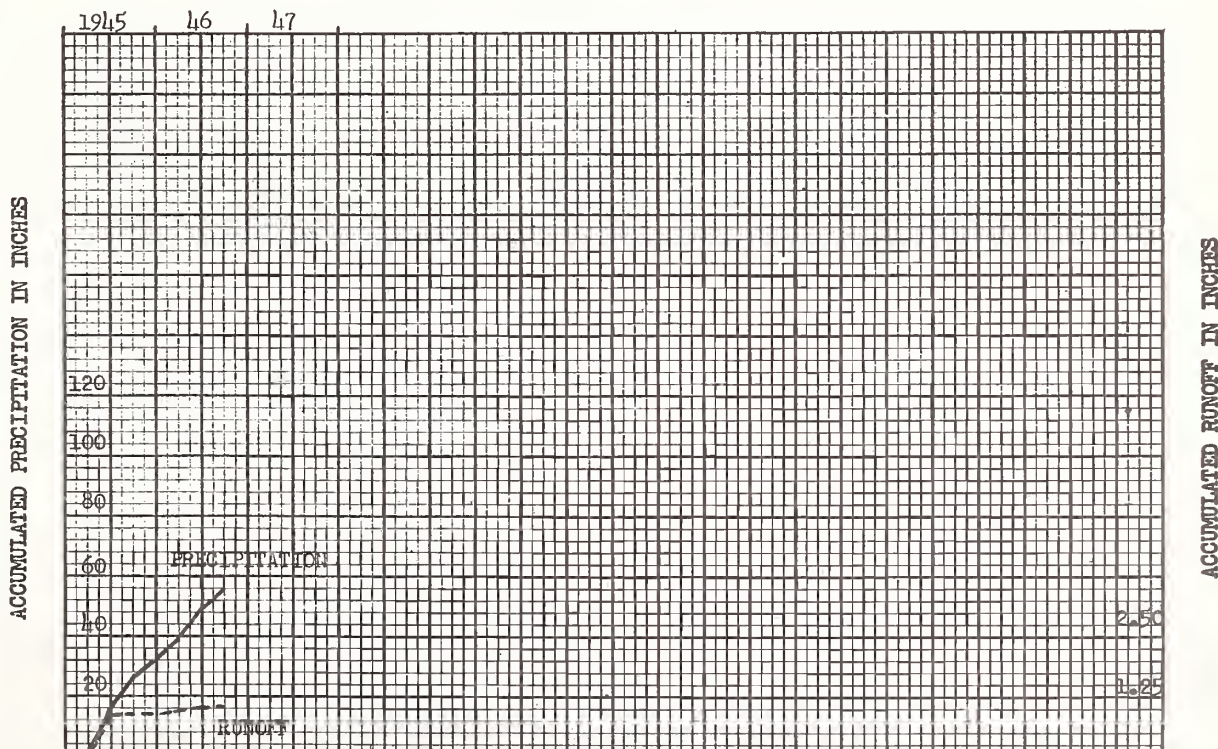
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.

**WATERSHED CONDITIONS:** Permanent blue-grass pasture, good condition.

**GENERALLY REPRESENTS:** Pastured areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Elmwood, Ill., Watershed WB-3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945 P				4.71	6.11	6.45	0.48	1.67	7.36	1.14	1.96	1.59	31.47
Q				0	.26	.58	0	.01	T	0	0	0	.35
1946 P	3.15	0.29	3.03	1.13	5.11	5.11	.88	3.18	1.93				23.31
Q	.03	0	0	0	0	.08	0	.01	0				.17
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Av. Q													
Normal P	1.97	1.91	2.79	3.44	3.94	3.88	3.70	2.99	3.73	2.44	2.35	2.04	35.18

**Notes:** No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.



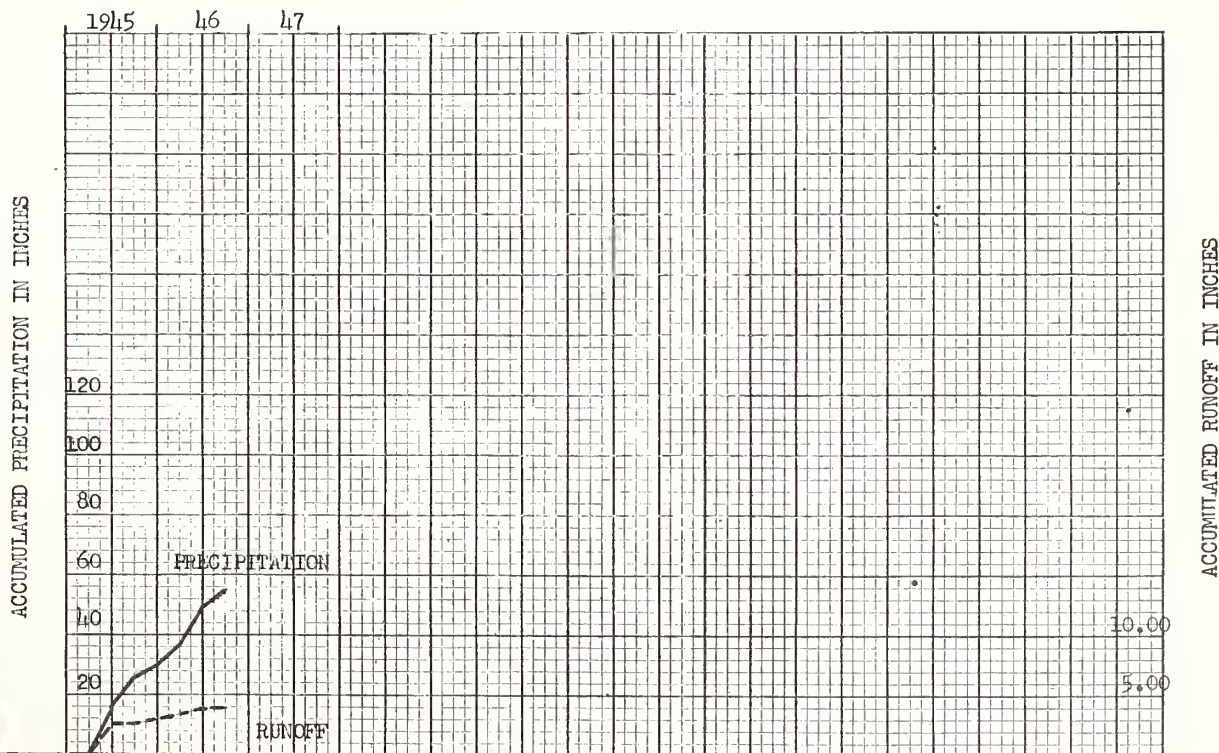
10-55

ELMWOOD, ILLINOIS

Watershed WB-4

LOCATION: Peoria Co., Ill.; 8.25 mi. ENE. of Elmwood; Illinois River Basin.AREA: 2.77 ac.SHAPE: Roughly rectangular, about 400 ft. wide by 325 ft. long.SLOPES: 100% is in 1-3% class. Aspect East.SOILS: Gray Brown Podzolic - Argipan Intergrade; topsoil - medium textured, weak crumb structure, moderately shallow (13-19"); subsoil - moderately slow to slow permeability; internal drainage slow, imperfectly drained profile. Berwick Silt Loam - 100%.EROSION: 2 - 100%.LAND CAPABILITY: III - 100%.SURFACE DRAINAGE: Fair. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 618 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.WATERSHED CONDITIONS: First and second year corn after hay.GENERALLY REPRESENTS: Cultivated areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station

Elmwood, Ill., Watershed WB-4

Notes: No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.

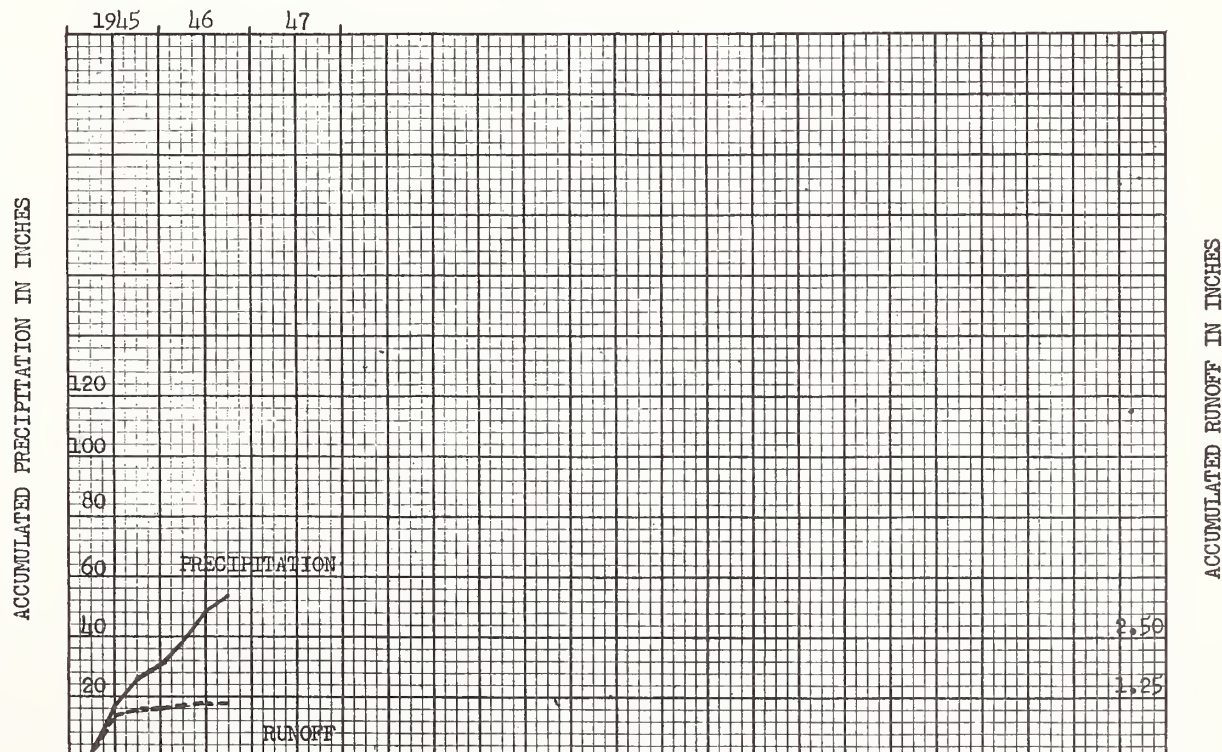
10-55

ELMWOOD, ILLINOIS

Watershed WB-5

LOCATION: Peoria Co., Ill.; 4.5 mi. ESE. of Elmwood; Illinois River Basin.AREA: 1.93 ac.SHAPE: Roughly oval, about 225 ft. wide by 450 ft. long.SLOPES: 100% is in 1-3% class. Aspect East.SOILS: Gray Brown Podzolic - Argipan Intergrade; topsoil - medium textured, weak crumb structure, moderately shallow (13-19"); subsoil - moderately slow to slow permeability; internal drainage slow, imperfectly drained profile. Berwick Silt Loam - 100%.EROSION: 2 - 100%.LAND CAPABILITY: III - 100%.SURFACE DRAINAGE: Good. Natural waterway; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 471 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.WATERSHED CONDITIONS: Permanent blue-grass pasture, good condition.GENERALLY REPRESENTS: Pastured areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Elmwood, Ill., Watershed WB-5

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945 P				5.19	5.81	6.55	0.66	1.12	6.65	0.77	1.82	1.68	30.25
Q				.02	.30	.61	0	.01	.04	.01	0	0	.99
1946 P	3.12	0.38	3.28	1.79	4.92	5.22	1.13	3.02	1.57				24.43
Q	.04	0	0	0	0	.05	0	0	0				.09
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ELMWOOD, ILLINOIS Watershed WB-6

LOCATION: Peoria Co., Ill.; 4.75 mi. ESE. of Elmwood; Illinois River Basin.

AREA: 2.41 ac.

SHAPE: Roughly oval, about 350 ft. wide by 425 ft. long.

SLOPES: 100% is in 1-3% class. Aspect North.

SOILS: Gray Brown Podzolic - Argipan Intergrade; topsoil - medium textured, weak crumb structure, moderately shallow (13-19"); subsoil - moderately slow to slow permeability; internal drainage slow, imperfectly drained profile. Berwick Silt Loam - 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Fair. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 426 ft.

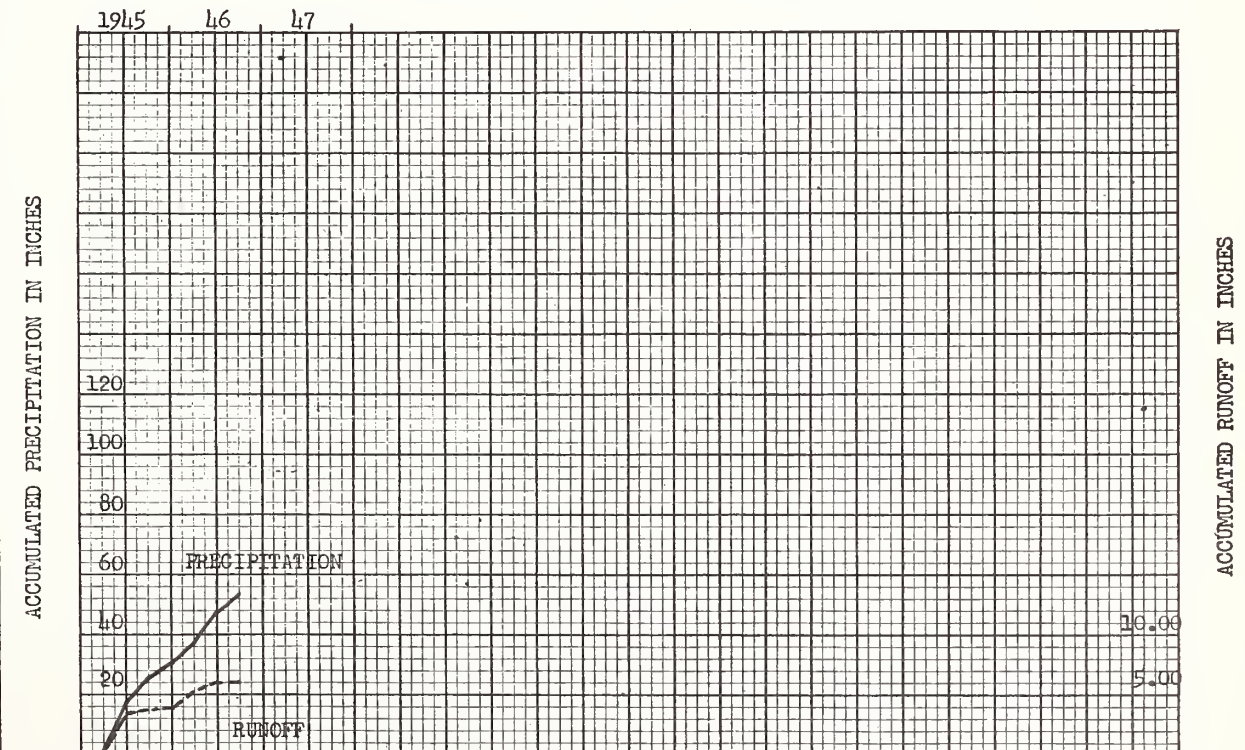
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.

WATERSHED CONDITIONS: First and second year corn after hay.

GENERALLY REPRESENTS: Cultivated areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Elmwood, Ill., Watershed WB-6

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945 P				4.62	5.81	6.47	0.60	1.10	6.40	0.77	2.18	1.68	29.63
Q				.48	2.45	.53	0	0	.30	.05	T	0	3.81
1946 P	3.12	0.38	3.28	1.66	5.12	5.00	1.22	2.92	1.62				24.32
Q	1.31	0	.09	0	0	.89	0	0	.02				2.31
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Normal P	1.97	1.91	2.79	3.44	3.94	3.88	3.70	2.99	3.73	2.44	2.35	2.04	35.18

**Notes:** No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.

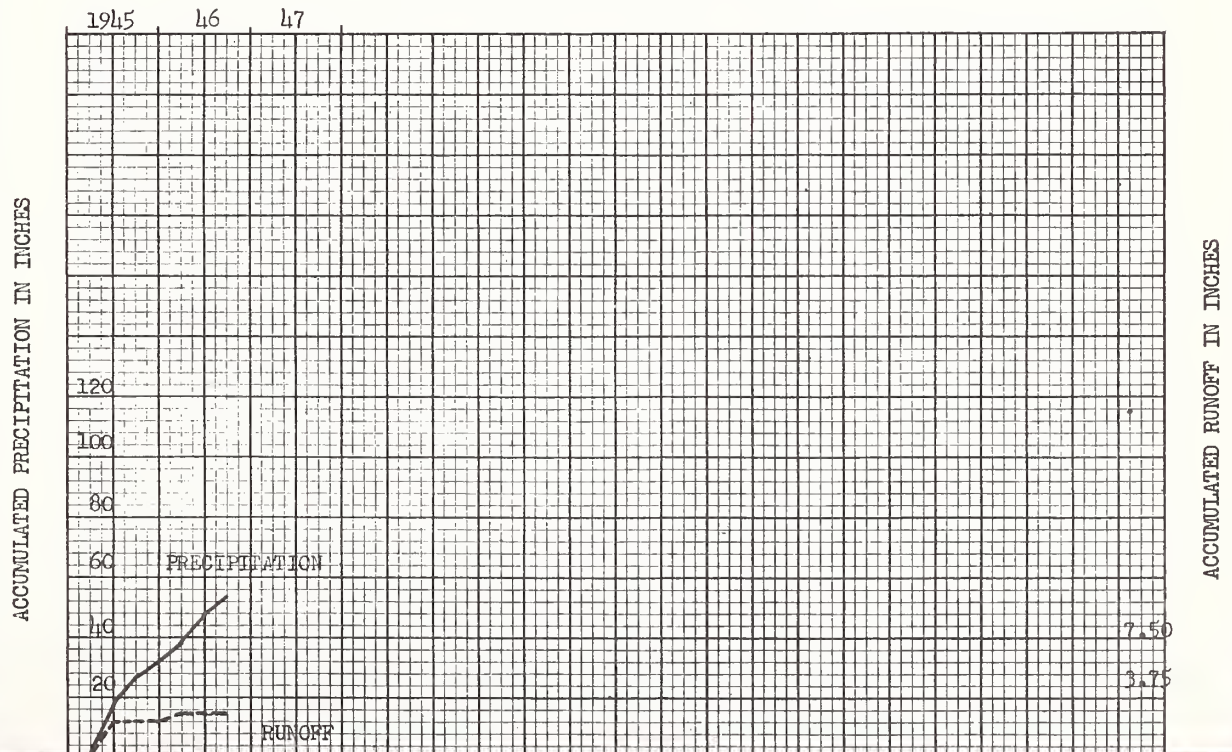


10-55

ELMWOOD, ILLINOIS Watershed WT-1

LOCATION: Peoria Co., Ill.; 5.5 mi. N. of Elmwood; Illinois River Basin.AREA: 2.02 ac.SHAPE: Roughly oval, about 200 ft. wide by 625 ft. long.SLOPES: 100% is in 4-7% class. Aspect East.SOILS: Brunizem; topsoil - medium textured, granular to crumb structure, moderately shallow (13-18"); subsoil - moderate permeability; internal drainage medium; well to moderately well-drained soil; artificial drainage not required. Tama Silt Loam - 100%.EROSION: 2- 100%LAND CAPABILITY: II - 100%SURFACE DRAINAGE: Good. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 574 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.WATERSHED CONDITIONS: Permanent blue-grass pasture, good condition.GENERALLY REPRESENTS: Pastured areas of Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Elmwood, Ill., Watershed WT-1

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945	P				4.45	6.69	6.93	0.98	1.51	6.48	1.54	1.68	1.79	32.05
	Q				.21	.74	1.29	0	0	.07	.02	0	0	2.33
1946	P	3.30	0.28	2.81	.91	4.52	4.76	1.12	2.54	1.83				22.07
	Q	.42	0	0	0	0	.03	0	0	0				.45
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Normal P		1.97	1.91	2.79	3.44	3.94	3.88	3.70	2.99	3.73	2.44	2.35	2.04	35.13

**Notes:** No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.

LOCATION: Peoria Co., Ill.; 5.5 mi. N. of Elmwood; Illinois River Basin.

AREA: 1.88 ac.

SHAPE: Roughly oval, about 275 ft. wide by 475 ft. long.

SLOPES: 100% is in 4-7% class. Aspect East.

SOILS: Brunizem; topsoil - medium textured, granular to crumb structure, moderately shallow (13-18"); subsoil - moderate permeability; internal drainage medium; well to moderately well drained soil; artificial drainage not required. Tama Silt Loam - 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 426 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.

WATERSHED CONDITIONS: First and second year corn after hay.

GENERALLY REPRESENTS: Cultivated areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station



Elmwood, Ill., Watershed WT-2

Notes: No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.

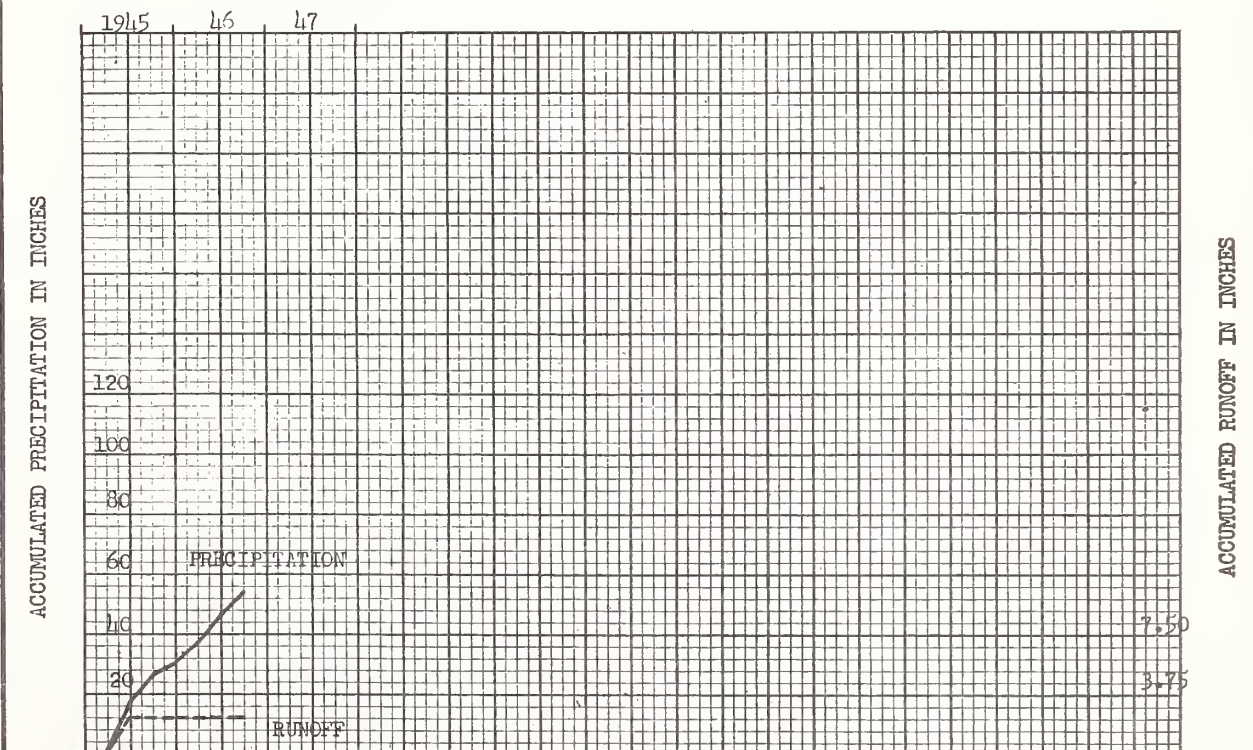
10-55

ELMWOOD, ILLINOIS

Watershed WT-3

LOCATION: Peoria Co., Ill.; 5.75 mi. NE. of Elmwood; Illinois River Basin.AREA: 2.40 ac.SHAPE: Roughly oval, about 425 ft. wide by 275 ft. long.SLOPES: 100% is in 4-7% class. Aspect East.SOILS: Brunizem; topsoil - medium textured, granular to crumb structure, moderately shallow (13-18"); subsoil - moderate permeability; internal drainage medium; well to moderately well drained soil; artificial drainage not required. Tama Silt Loam - 100%.EROSION: 2 - 100%.LAND CAPABILITY: II - 100%.SURFACE DRAINAGE: Good. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 279 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.WATERSHED CONDITIONS: Permanent blue-grass pasture, good condition.GENERALLY REPRESENTS: Pastured areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Elmwood, Ill., Watershed WT-3

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945	P			4.76	6.40	6.85	0.48	1.42	5.77	1.23	1.87	1.56	30.34
	Q			.03	1.08	1.18	T	0	.01	.01	0	0	2.31
1946	P	3.00	0.40	3.05	1.46	5.04	4.60	1.10	2.87	2.46			23.98
	Q	0	0	0	0	0	.16	0	T	0			.16
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Normal P	1.97	1.91	2.79	3.44	3.94	3.88	3.70	2.99	3.73	2.44	2.35	2.04	35.18

**Notes:** No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.



LOCATION: Peoria Co., Ill.; 5.5 mi. NE. of Elmwood; Illinois River Basin.

AREA: 2.06 ac.

SHAPE: Roughly rectangular, about 625 ft. wide by 560 ft. long.

SLOPES: 100% is in 4-7% class. Aspect South.

SOILS: Brunizem; topsoil - medium textured, granular to crumb structure, moderately shallow (13-18"); subsoil - moderate permeability; internal drainage medium; well to moderately well drained soil; artificial drainage not required. Tama Silt Loam - 100%.

EROSION: 3 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 426 ft.

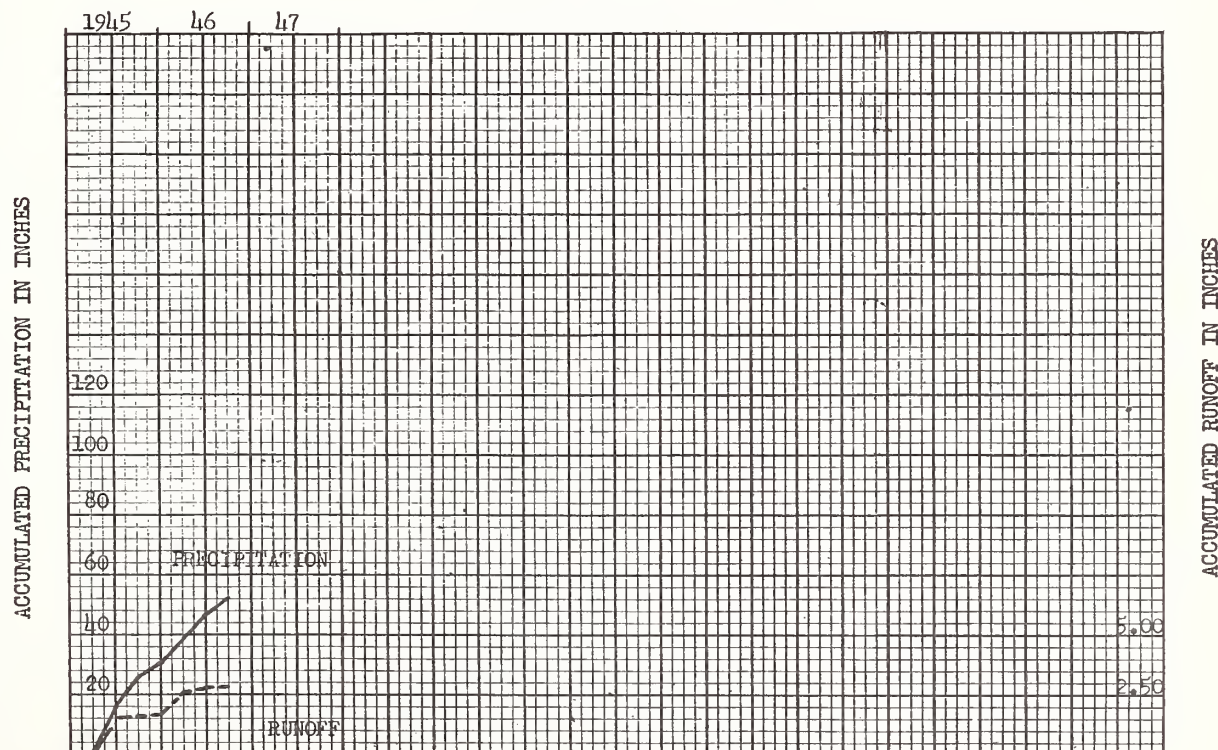
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.

WATERSHED CONDITIONS: First and second year corn after hay.

GENERALLY REPRESENTS: Cultivated areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Elmwood, Ill., Watershed WT-4

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945	P Q				4.51 .02	6.33 .71	6.26 .76	0.45 0	1.67 .02	6.42 .13	1.20 .06	1.87 0	1.56 0	30.27 1.70
1946	P Q	3.00 .87	0.40 0	3.05 0	1.37 0	5.04 0	4.24 .18	1.05 0	2.83 T	2.07 T				23.05 1.05
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ELMWOOD, ILLINOIS Watershed WT-5

LOCATION: Peoria Co., Ill.; 3.75 mi. SE. of Elmwood; Illinois River Basin.

AREA: 2.76 ac.

SHAPE: Roughly rectangular, about 400 ft. wide by 340 ft. long.

SLOPES: 100% is in 5-7% class. Aspect West.

SOILS: Brunizem; topsoil - medium textured, granular to crumb structure, moderately shallow (13-18"); subsoil - moderate permeability; internal drainage medium; well to moderately well drained soil; artificial drainage not required. Tama Silt Loam - 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 382 ft.

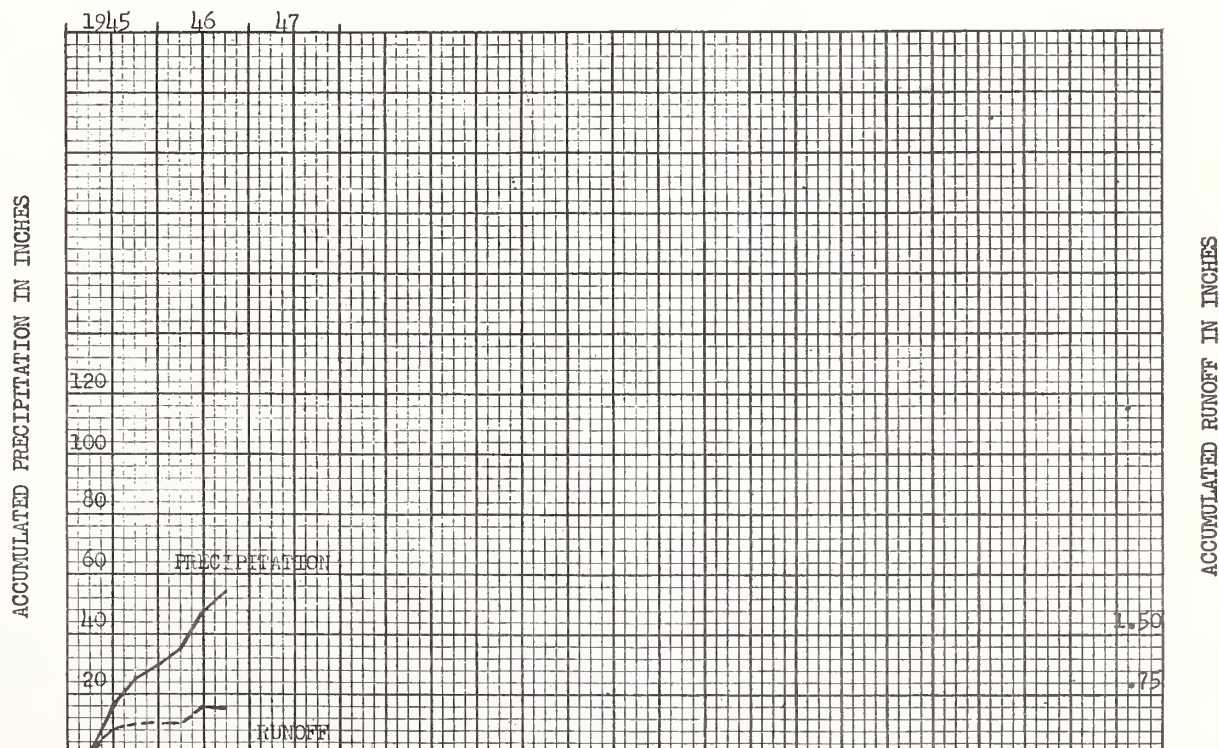
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.

WATERSHED CONDITIONS: Permanent blue-grass pasture, good condition.

GENERALLY REPRESENTS: Pastured areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Elmwood, Ill., Watershed WT-5

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945 P				4.78	5.37	5.80	1.27	0.92	6.49	0.78	1.71	1.63	28.75
Q				.01	.10	.23	.01	.02	.01	T	0	0	.38
1946 P	3.08	0.30	3.11	1.81	5.00	6.38	.83	3.01	1.59				25.11
Q	0	0	0	0	0	.18	0	T	0				.18
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Normal P	1.97	1.91	2.79	3.44	3.94	3.88	3.70	2.99	3.73	2.44	2.35	2.04	35.18

Notes: No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.

LOCATION: Peoria Co., Ill.; 4 mi. SE. of Elmwood; Illinois River Basin.

AREA: 5.35 ac.

SHAPE: Roughly rectangular, about 340 ft. wide by 875 ft. long.

SLOPES: 100% is in 4-7% class. Aspect West.

SOILS: Brunizem; topsoil - medium textured, granular to crumb structure, moderately shallow (13-18"); subsoil - moderate permeability; internal drainage medium; well to moderately well drained soil; artificial drainage not required. Tama Silt Loam - 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good. Natural watershed; small earth dike at measuring station to funnel all surface flow into flume; principal drainageway - 916 ft.

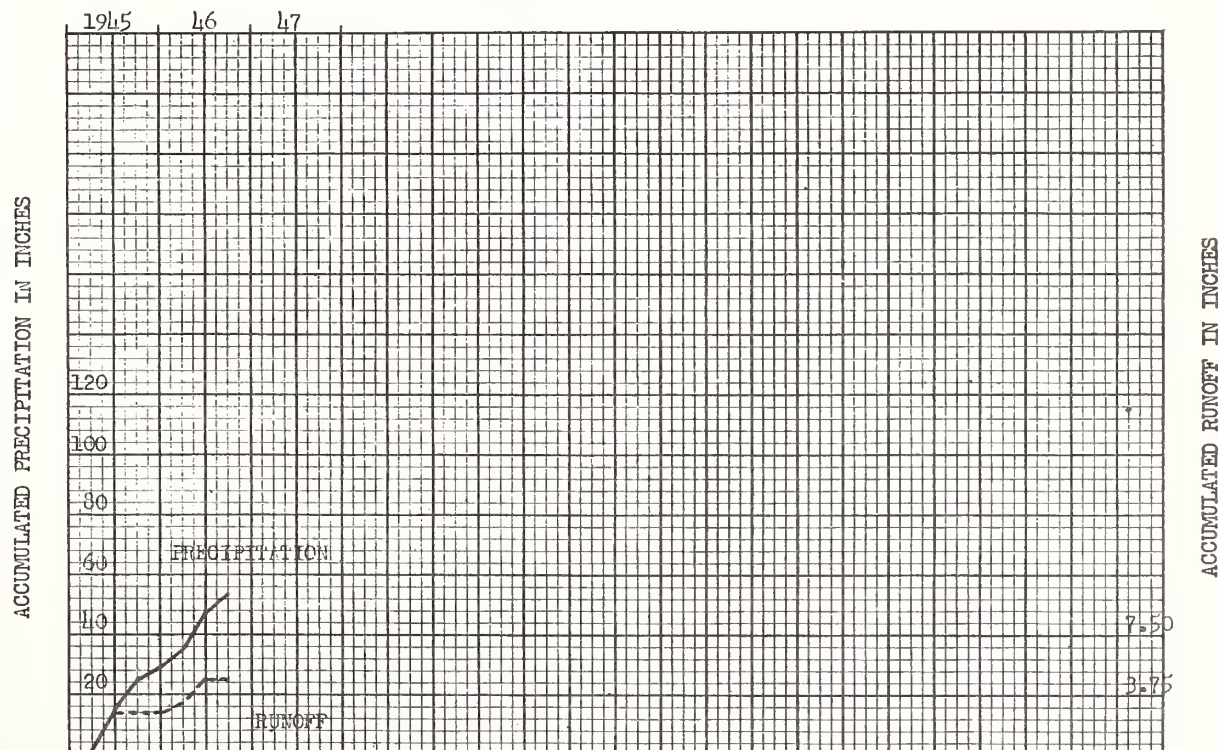
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3.5 ft., Type H flume; precipitation - non-recording and recording gages.

WATERSHED CONDITIONS: First and second year corn after hay.

GENERALLY REPRESENTS: Cultivated areas of the Iowa-Illinois Deep Loess Drift Problem Area in the Central Plains of Illinois.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative project of the USDA and Illinois Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Elmwood, Ill., Watershed WT-6

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1945	P				4.56	5.21	6.36	1.14	0.99	6.37	0.73	1.71	1.63	23.75
	Q				.03	.57	2.03	.01	0	.04	.01	0	0	2.69
1946	P	3.08	0.30	3.10	1.76	4.79	6.17	.80	3.16	1.64				24.80
	Q	.23	0	0	0	0	1.56	0	T	0				1.79
	P													
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Av. P														
Av. Q														
Normal P		1.97	1.91	2.79	3.44	3.94	3.88	3.70	2.99	3.73	2.44	2.35	2.04	35.18

**Notes:** No averages because no full years of record. Normal P based on USWB normal figures for Peoria, Ill., 1921-50. Accuracy of records: good.



LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 2.55 ac.

SHAPE: Roughly diamond, about 330 ft. wide and 330 ft. long.

SLOPES: 24% is in 0-2% class; 59% in 2-6%; 17% in 6 + %. Aspect NE.

SOILS: Parent material - glacial till. Av. depth of topsoil - 8.0 inches. 75% Sidell silt loam, friable silty clay loam subsoil, well-drained; 25% Dana silt loam, friable topsoil, silty clay loam subsoil, moderately well-drained.

EROSION: 1 and + - 25%; 2 - 73%; 3 - 2%.

LAND CAPABILITY: I - 25%; II - 58%; III - 17%.

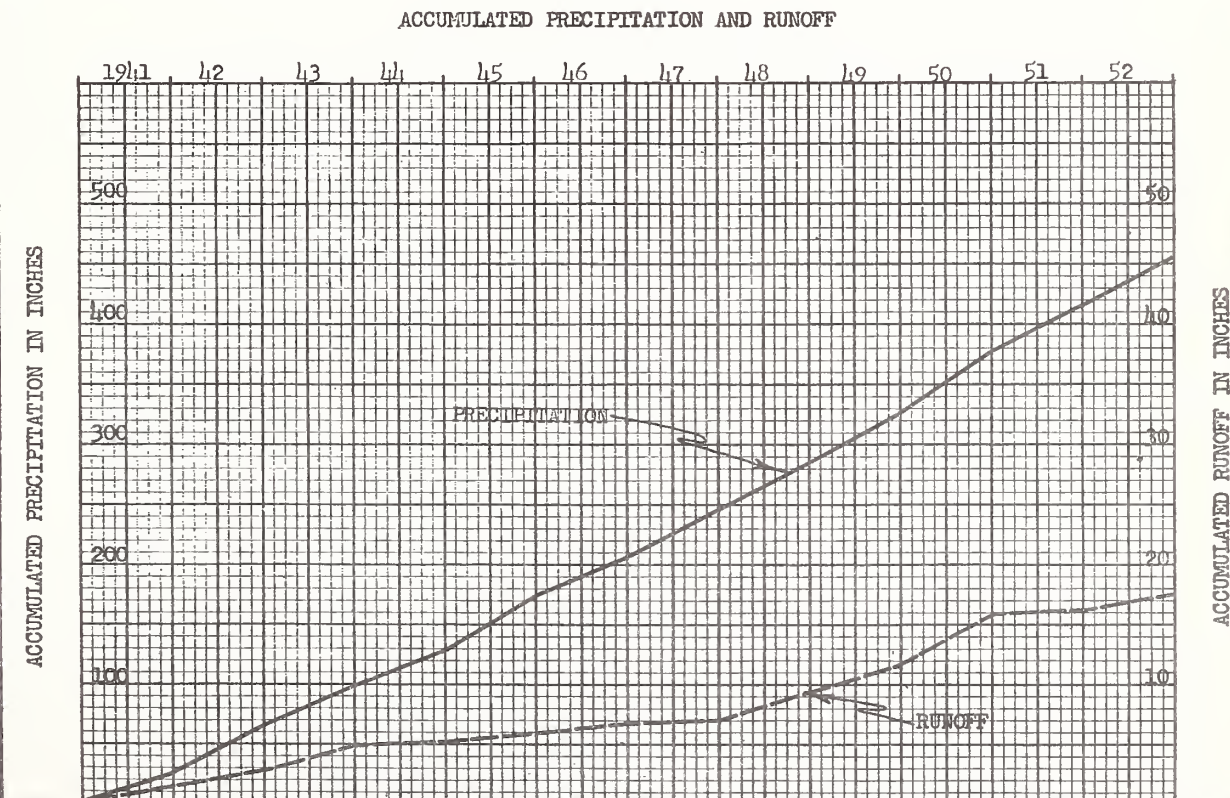
SURFACE DRAINAGE: Good; length of principal waterway - 540 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. type H flume and waterstage recorder; precipitation - recording rain gauge.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farmed with special experimental conservation practices, including contouring, heavy fertilizing, sub tillage, and crop residue mulches, thereafter. 1942-46 - rotation of corn, wheat meadow beginning with wheat. 1947 - second year meadow. 1948-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Lafayette, Ind., Watershed 1**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.32 .07	3.22 .11	4.88 1.75	0.10 0	2.82 .02	1.10 .05	4.73 1.05	3.15 .01	1.95 0	24.27 3.06
1941 P Q	0.84 0	0.33 0	1.28 0	2.62 0	2.47 0	4.34 0	1.09 0	1.69 0	1.40 0	6.35 1.15	2.98 .39	.98 0	26.37 1.54
1942 P Q	1.11 0	3.52 .47	2.89 T	2.62 .02	3.16 .01	3.95 T	8.60 .84	3.53 .01	2.50 0	1.46 0	4.13 0	.98 T	38.45 1.35
1943 P Q	.71 0	.98 .02	2.26 .02	2.35 0	11.87 1.98	3.67 0	3.57 .02	1.91 0	1.57 0	1.19 0	2.84 0	.44 0	33.36 2.04
1944 P Q	.39 0	2.64 0	3.34 0	6.00 .09	5.85 0	1.79 0	1.76 0	2.40 0	1.66 0	1.64 0	2.28 0	1.30 0	31.05 .09
1945 P Q	.36 0	1.19 .22	6.59 .01	3.95 .03	4.78 .08	8.33 .12	.97 0	5.02 .33	6.79 .02	2.48 T	2.13 0	2.38 .11	44.97 .92
1946 P Q	1.56 0	2.86 .77	2.56 0	1.68 0	7.38 0	3.62 0	1.90 0	2.01 0	1.86 0	3.34 0	2.88 0	1.99 0	33.64 .77
1947 P Q	2.75 0	.25 0	1.58 0	7.66 .25	3.93 0	4.26 .02	2.60 T	4.31 0	5.57 .02	1.89 0	1.62 0	2.05 0	38.47 .29
1948 P Q	1.53 0	2.14 .09	4.64 .03	4.81 1.14	3.30 T	4.48 .01	3.80 .02	1.54 T	4.09 .08	2.37 0	3.30 T	2.83 .81	38.83 2.18
1949 P Q	7.11 1.68	3.14 .79	3.25 .10	2.51 T	3.10 T	4.88 .02	2.92 0	1.91 0	.86 0	8.21 .03	1.83 0	3.87 .01	43.59 2.63
1950 P Q	8.89 2.77	4.28 .54	2.66 T	5.01 .48	1.84 0	6.98 .05	3.45 .02	2.91 0	6.71 .22	1.60 T	4.19 0	1.58 0	50.10 4.08
1951 P Q	1.81 .15	4.32 .04	1.69 0	2.53 0	4.34 0	4.80 0	4.69 T	1.84 0	1.80 0	2.67 0	2.19 0	2.31 T	34.99 .19
1952 P Q	2.45 0	2.05 0	3.15 0	4.89 # .13	4.35 T	8.90 1.24	2.79 0	2.90 T	3.89 T	1.39 0	3.25 0	1.65 0	41.66 1.37
1953 P Q  P Q  P Q  P Q  P Q	1.96 T	1.46 T	6.04 T	2.15 T	3.31 T	4.45 .02	6.65 .20	1.84 0	.89 0				28.75 .22
**Av. P **Av. Q	2.61 .42	2.49 .27	3.15 .01	4.00 .19	4.90 .19	5.06 .13	3.37 .08	2.75 .03	3.39 .03	2.57 T	2.79 T	1.94 .08	39.02 1.43
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** # Partially estimated. \*\* Does not include calibration years 1940-41 nor part year for 1953. Quality of records: P - excellent; Q - Good except during some freezing periods. Normal P based on 75 yr. record (1880-1940 Lafayette U. S. Weather Bureau station, 8 mi. from farm; 1941-54, project records).



LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 2.23 ac.

SHAPE: Fan, about 260 ft. wide and 375 ft. long.

SLOPES: 15% is in 0-2% class; 63% in 2-6%; 22% in 6 + %. Aspect NW.

SOILS: Parent material - glacial till. Av. depth of topsoil - 7.0 inches. 68% Sidell silt loam, friable silty clay loam subsoil, well-drained; 20% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained; 12% Chalmers silty clay loam, medium to coarse structured topsoil, heavy silty clay loam subsoil, very poorly drained.

EROSION: 1 and + - 2%; 2 - 94%; 3 - 4%.

LAND CAPABILITY: I - 7%; II - 71%; III - 22%.

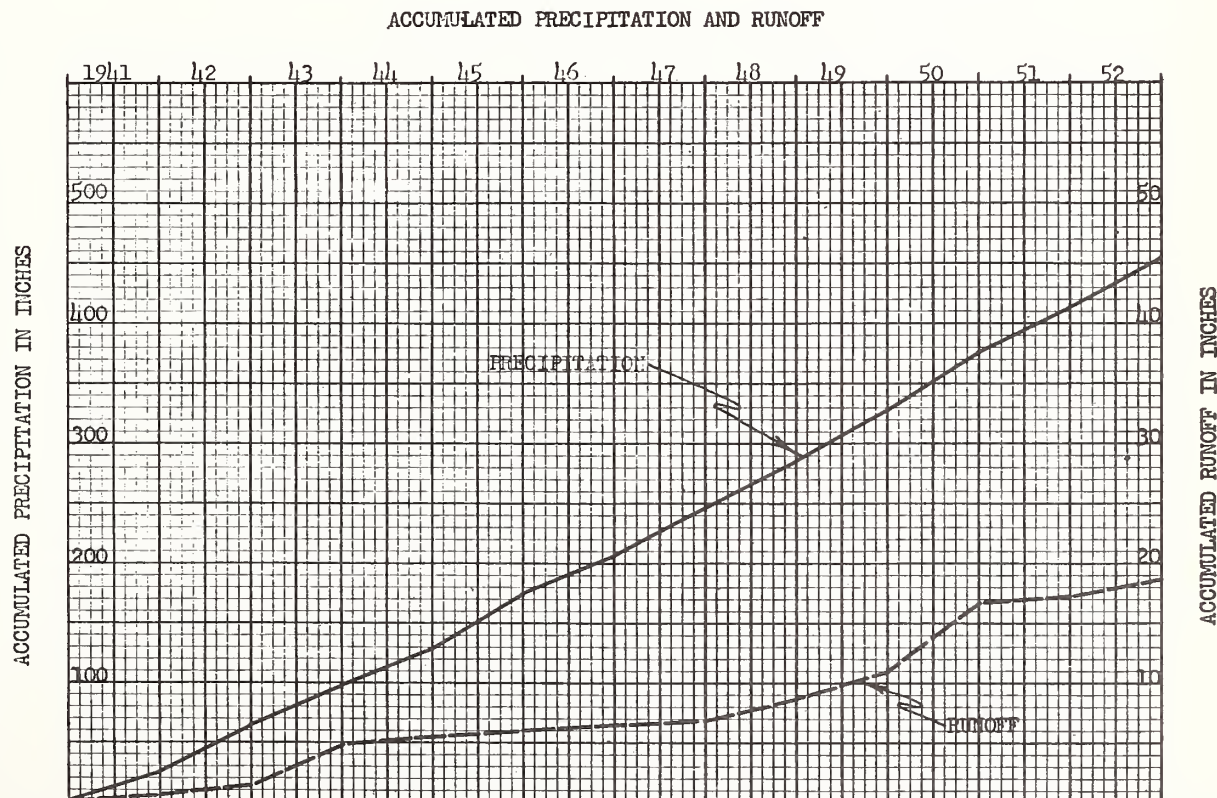
SURFACE DRAINAGE: Good; length of principal waterway - 420 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. type H flume and waterstage recorder; precipitation - recording rain gauge.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farmed with conservation practices including contouring, heavy fertilizing, and residue management thereafter. 1942-46 - rotation of corn, wheat, meadow beginning with wheat. 1947-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Lafayette, Indiana, Watershed 2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.32 0	3.22 .10	4.88 1.38	0.10 0	2.82 0	1.10 0	4.73 .36	3.15 T	1.95 0	24.27 1.84
1941 P Q	0.84 0	0.33 0	1.28 0	2.62 0	2.47 0	4.34 0	1.09 0	1.69 0	1.40 0	6.35 .54	2.98 .12	.98 0	26.37 .66
1942 P Q	1.11 0	3.52 .06	2.89 T	2.62 .06	3.16 T	3.95 T	8.60 .44	3.53 T	2.50 0	1.46 0	4.13 0	.98 0	38.45 .56
1943 P Q	.71 0	.98 0	2.26 .01	2.35 0	11.87 3.66	3.67 T	3.57 T	1.91 0	1.57 0	1.19 0	2.84 0	.44 0	33.36 3.67
1944 P Q	.39 0	2.64 0	3.34 0	6.00 .53	5.85 T	1.79 0	1.76 0	2.40 0	1.66 0	1.64 0	2.28 0	1.30 0	31.05 .53
1945 P Q	.36 0	1.19 .10	6.59 .01	3.95 .01	4.78 .09	8.33 .11	.97 0	5.02 .07	6.79 T	2.48 .01	2.13 0	2.38 .18	44.97 .58
1946 P Q	1.56 0	2.86 * .38	2.56 0	1.68 0	7.38 0	3.62 0	1.90 0	2.01 T	1.86 T	3.34 T	2.88 0	1.99 0	33.64 .38
1947 P Q	2.75 T	.25 0	1.58 0	7.66 .41	3.93 0	4.26 .11	2.60 0	4.31 .01	5.57 0	1.89 0	1.62 0	2.05 0	38.47 .53
1948 P Q	1.53 .01	2.14 .11	4.64 .07	4.81 1.27	3.30 0	4.48 .36	3.80 .01	1.54 0	4.09 0	2.37 0	3.30 T	2.83 .06	38.83 1.89
1949 P Q	7.11 *1.27	3.14 .73	3.25 .21	2.51 T	3.10 0	4.88 .01	2.92 0	1.91 0	.86 0	8.21 T	1.83 0	3.87 .02	43.59 2.24
1950 P Q	8.89 3.67	4.28 .59	2.66 .10	5.01 .72	1.84 0	6.98 .03	3.45 .10	2.91 0	6.71 .32	1.60 0	4.19 0	1.58 0	50.10 5.53
1951 P Q	1.81 .02	4.32 * .44	1.69 0	2.53 0	4.34 0	4.80 .07	4.69 .01	1.84 0	1.80 0	2.67 0	2.19 0	2.31 .05	34.99 .59
1952 P Q	2.45 0	2.05 0	3.15 0	4.89 0	4.35 0	8.90 1.48	2.79 0	2.90 0	3.89 0	1.39 0	3.25 0	1.65 0	41.66 1.48
1953 P Q	1.96 0	1.46 0	6.04 .01	2.15 .02	3.31 T	4.45 T	6.65 T	1.84 0	.89 0				28.75 .03
P													
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**Av. P **Av. Q	2.61 .45	2.49 .22	3.15 .04	4.00 .27	4.90 .34	5.06 .20	3.37 .05	2.75 .01	3.39 .03	2.57 T	2.79 T	1.94 .03	39.02 1.64
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part-year amounts for 1953. Quality of Records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. records (1880-1940 at Lafayette U.S.W.B. station 8 mi. from farm; 1941-1954 project records).

LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 2.01 ac.

SHAPE: Roughly rectangular, about 220 ft. wide and 400 ft. long.

SLOPES: 2% is in 0-2% class; 68% in 2-6%; 30% in 6 + %. Aspect NW.

SOILS: Parent material - glacial till. Av. depth of topsoil - 7.5 inches. 87% Sidell silt loam, friable silty clay loam subsoil, well-drained; 2% Dana silt loam, friable topsoil, silty clay loam subsoil, moderately well-drained; 11% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained.

EROSION: 1 and + - 9%; 2 - 86%; 3 - 5%.

LAND CAPABILITY: I - 2%; II - 68%; III - 30%.

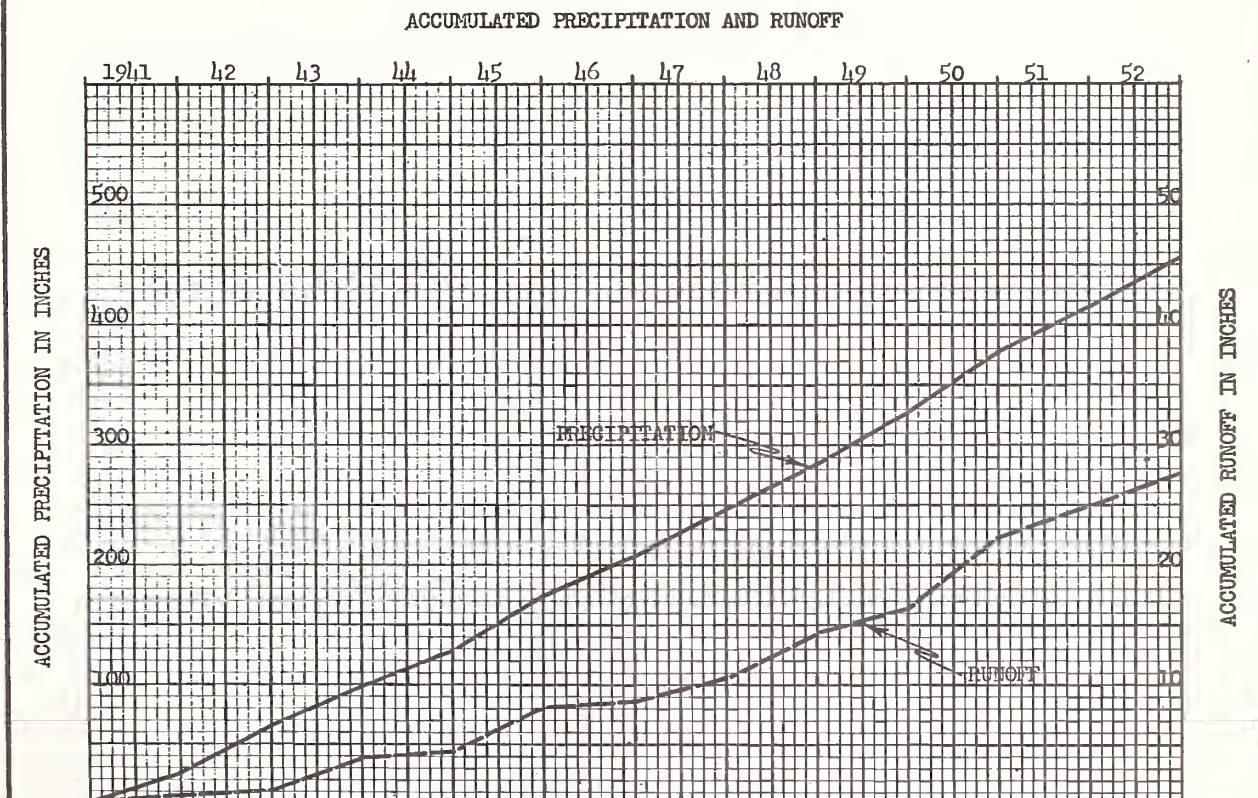
SURFACE DRAINAGE: Good; length of principal waterway - 520 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farming with prevailing practices continued thereafter. 1942-46 - rotation of corn, wheat, meadow beginning with wheat. 1947-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station



Lafayette, Ind., Watershed 4

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.32 0	3.22 .16	4.88 1.43	0.10 0	2.82 0	1.10 .01	4.73 .64	3.15 .01	1.95 0	24.27 2.25
1941 P Q	0.84 0	0.33 0	1.28 0	2.62 0	2.47 0	4.34 0	1.09 0	1.69 0	1.40 0	6.35 .53	2.98 .14	.98 0	26.37 .67
1942 P Q	1.11 0	3.52 .06	2.89 T	2.62 T	3.16 T	3.95 T	8.60 .36	3.53 0	2.50 0	1.46 0	4.13 T	.98 0	38.45 .42
1943 P Q	.71 0	.98 0	2.26 0	2.35 0	11.87 2.83	3.67 0	3.57 .06	1.91 0	1.57 0	1.19 0	2.84 0	.44 0	33.36 2.89
1944 P Q	.39 0	2.64 0	3.34 0	6.00 .32	5.85 T	1.79 0	1.76 T	2.40 T	1.66 0	1.64 T	2.28 0	1.30 0	31.05 .32
1945 P Q	.36 0	1.19 .01	6.59 .27	3.95 .43	4.78 .76	8.33 1.52	.97 T	5.02 .40	6.79 .05	2.48 .01	2.13 0	2.38 *.29	44.97 3.74
1946 P Q	1.56 0	2.86 *.54	2.56 0	1.68 0	7.38 0	3.62 .01	1.90 0	2.01 0	1.86 0	3.34 0	2.88 0	1.99 0	33.64 .55
1947 P Q	2.75 0	.25 0	1.58 0	7.66 .16	3.93 0	4.26 .21	2.60 .06	4.31 .41	5.57 .93	1.89 0	1.62 0	2.05 0	38.47 1.77
1948 P Q	1.53 .13	2.14 *.41	4.64 .38	4.81 1.79	3.30 0	4.48 .55	3.80 .17	1.54 T	4.09 .01	2.37 0	3.30 0	2.83 .35	38.83 3.79
1949 P Q	7.11 1.23	3.14 .73	3.25 .14	2.51 T	3.10 0	4.88 .14	2.92 0	1.91 0	.86 0	8.21 0	1.83 0	3.87 .05	43.59 2.29
1950 P Q	8.89 3.60	4.28 *.53	2.66 .03	5.01 .54	1.84 0	6.98 .11	3.45 .26	2.91 0	6.71 .76	1.60 0	4.19 .01	1.58 0	50.10 5.84
1951 P Q	1.81 .20	4.32 1.04	1.69 0	2.53 0	4.34 0	4.80 .56	4.69 .79#	1.84 0	1.80 0	2.67 0	2.19 0	2.31 *.05	34.99 2.64
1952 P Q	2.45 .18	2.05 T	3.15 .02	4.89 .13	4.35 0	8.90 2.48	2.79 0	2.90 0	3.89 T	1.39 0	3.25 0	1.65 0	41.66 2.81
1953 P Q P Q P Q P Q P Q	1.96 T	1.46 T	6.04 .19	2.15 .55	3.31 .66	4.45 .54	6.65 1.32	1.84 .02	.89 0				28.75 3.28
**Av. P **Av. Q	2.61 .49	2.49 .30	3.15 .08	4.00 .31	4.90 .33	5.06 .51	3.37 .15	2.75 .07	3.39 .16	2.57 T	2.79 T	1.94 .07	39.02 2.47
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

Notes: # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.P. station 8 miles from farm; 1941-54 project records).



**LOCATION:** Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

**AREA:** 2.87 ac.

**SHAPE:** Fan, about 300 ft. wide and 400 ft. long.

**SLOPES:** 69% is in 0-2% class; 31% in 2-6%. Aspect N-MW.

**SOILS:** Parent material - glacial till. Av. depth of topsoil - 9.5 in. 31% Sidell silt loam, friable silty clay loam subsoil, well-drained. 53% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained; 16% Chalmers silty clay loam, medium to coarse granular structured topsoil, heavy silty clay loam subsoil, very poorly drained.

**EROSION:** 1 and + - 17%; 2 - 83%.

**LAND CAPABILITY:** I - 20%; II - 80%.

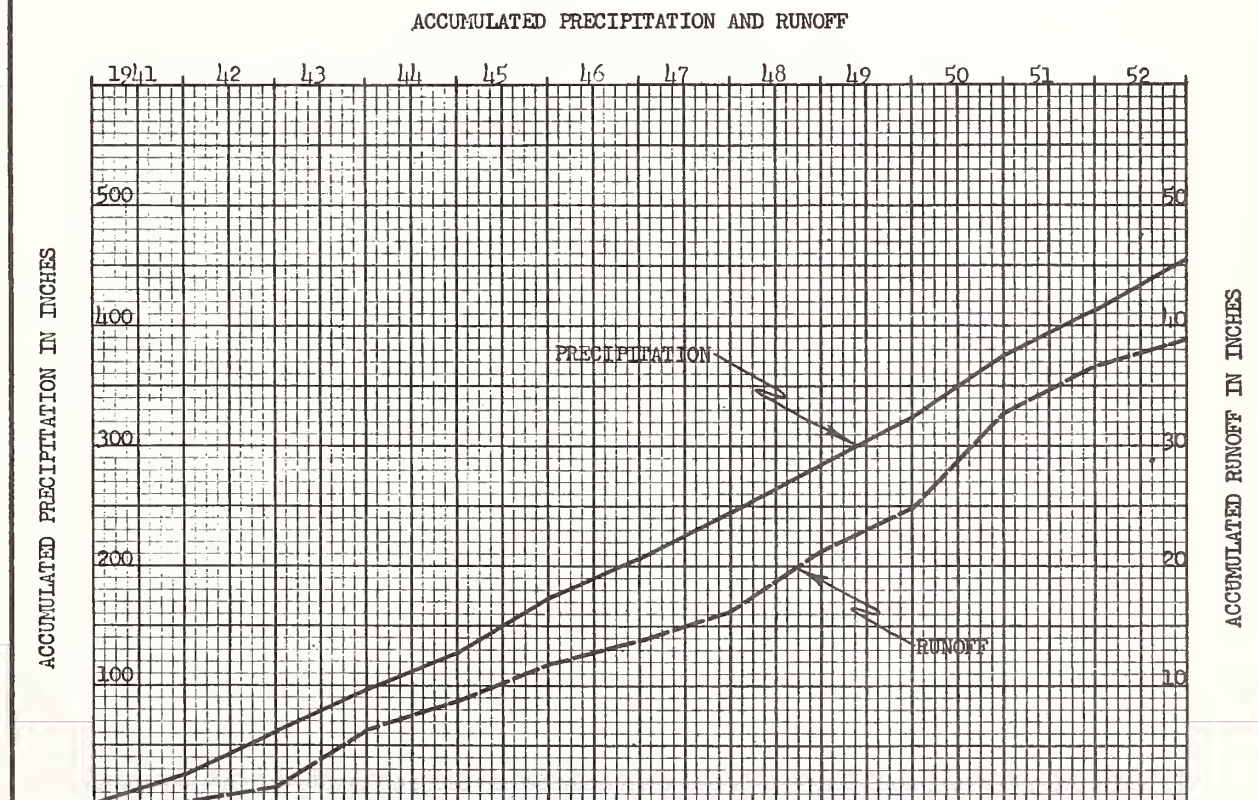
**SURFACE DRAINAGE:** Good, length of principal waterway - 480 ft.

**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.

**WATERSHED CONDITIONS:** 1940-41 - Wheat, meadow farmed with prevailing practices (calibration period). Farming under prevailing practices continued thereafter. 1942-45 - rotation of corn, wheat, meadow beginning with meadow. 1946-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

**GENERALLY REPRESENTS:** Central Illinois - Northwestern Indiana Heavy Till Area.



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Lafayette, Ind., Watershed 5

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.32 0	3.37 T	5.07 .95	0.11 0	3.02 0	1.00 0	4.86 .37	3.29 T	1.95 0	24.99 1.32
1941 P Q	0.84 0	0.33 0	1.28 0	2.62 0	2.61 0	3.78 0	.98 0	1.63 0	1.50 0	6.33 0	2.77 T	.97 0	25.64 T
1942 P Q	1.12 0	3.29 T	2.86 .27	2.65 .66	3.07 0	4.02 0	8.50 .43	3.39 .02	2.32 0	1.47 0	3.95 .01	.97 0	37.61 1.39
1943 P Q	.70 .01	.94 .07	2.16 .12	2.37 0	11.50 4.07	3.55 .18	3.62 .36	1.87 .01	1.53 0	1.14 0	2.80 .03	.43 0	32.61 4.85
1944 P Q	.42 0	2.48 .10	3.33 .24	6.11 1.25	5.78 .92	1.99 .07	1.84 0	2.40 T	1.67 0	1.69 T	2.28 0	1.30 0	31.29 2.58
1945 P Q	.36 0	1.19 .15	6.59 .03	4.25 .16	4.87 .92	8.42 # .75	.99 0	4.85 .34	6.94 .13	2.41 .09	2.12 .01	2.38 * .45	45.37 3.03
1946 P Q	1.56 * .25	2.86 .75	2.49 .14	1.68 0	7.36 T	3.50 .50	1.78 0	1.99 0	1.84 # .11	3.35 .02	2.95 .02	1.98 T	33.34 1.79
1947 P Q	2.75 .22	.25 0	1.52 .01	7.76 1.12	3.89 .01	4.36 .29	2.35 .11	4.33 .47	5.57 .29	1.88 0	1.56 0	2.05 0	38.27 2.52
1948 P Q	1.53 .15	2.14 .99	4.39 1.11	4.93 2.33	3.29 .07	4.57 .06	3.68 T	1.67 0	4.10 .05	2.33 0	3.31 0	2.83 .23	38.77 4.99
1949 P Q	7.11 2.45	3.14 .75	3.25 .33	2.37 0	3.01 0	4.88 .01	2.72 0	1.88 0	.82 0	8.26 T	1.83 0	3.87 .29	43.14 3.83
1950 P Q	8.89 *3.74	4.28 .77	2.66 .15	4.99 .66	2.10 0	6.90 1.90	3.41 T	3.03 0	6.91 .64	1.65 0	4.19 .02	1.58 T	50.59 7.88
1951 P Q	1.81 T	4.32 *1.44	1.69 0	2.58 0	4.31 0	4.76 .44	4.78 1.06	1.97 0	1.72 0	2.57 0	2.19 0	2.31 * .72	35.01 3.66
1952 P Q	2.45 .04	2.05 .13	3.15 .07	4.92 .21	4.23 0	9.00 1.66	2.68 0	2.73 0	3.72 .24	1.34 0	3.05 0	1.52 T	40.84 2.35
1953 P Q	1.93 0	1.36 T	5.96 1.03	2.07 .08	3.41 .06	4.41 .02	6.65 .17	1.84 0	.89 0				28.52 1.36
P													
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** Av. P	2.61	2.45	3.10	4.06	4.86	5.09	3.30	2.74	3.38	2.55	2.75	1.93	38.82
** Av. Q	.62	.47	.22	.58	.54	.53	.18	.08	.13	.01	.01	.15	3.52
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41, nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U. S. W. B. station 8 miles from farm; 1941-54 project records).



LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 2.79 ac.

SHAPE: Roughly rectangular, about 300 ft. wide and 400 ft. long.

SLOPES: 58% is in 0-2% class; 42% in 2-6%. Aspect N-W.

SOILS: Parent material - glacial till. Av. depth of topsoil 10.5 inches. 50% Sidell silt loam, friable silty clay loam subsoil, well-drained; 23% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained; 27% Chalmers silty clay loam, medium to coarse granular structured topsoil, heavy silty clay loam subsoil, very poorly drained.

EROSION: 1 and + - 42%; 2 - 58%.

LAND CAPABILITY: I - 19%; II - 81%.

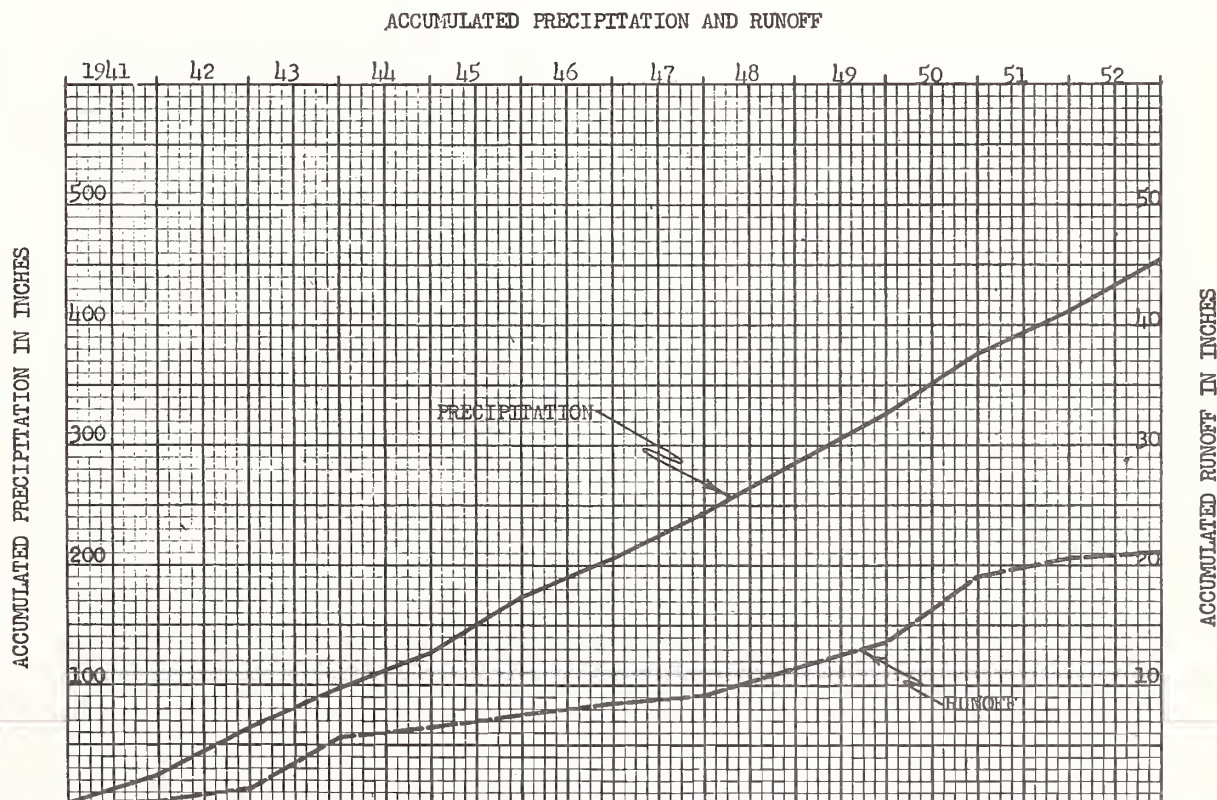
SURFACE DRAINAGE: Good, length of principal waterway - 550 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farmed under conservation practices, including contouring, heavy fertilizing, and residue management thereafter. 1942-45 - rotation of corn, wheat, meadow beginning with meadow. 1946-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Lafayette, Ind., Watershed 6**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.32 0	3.37 T	5.07 0.71	0.11 0	3.02 0	1.00 0	4.86 .18	3.29 T	1.95 0	24.99 .89
1941 P Q	0.84 0	0.33 0	1.28 0	2.62 0	2.61 0	3.78 T	.98 0	1.63 0	1.50 0	6.33 0	2.77 T	.97 0	25.64 T
1942 P Q	1.12 0	3.29 .04	2.86 .18	2.65 .45	3.07 T	4.02 T	8.50 .61	3.39 .03	2.32 T	1.47 0	3.95 .01	.97 .02	37.61 1.34
1943 P Q	.70 0	.94 .04	2.16 .14	2.37 0	11.50 3.63	3.55 .03	3.62 .41	1.87 .02	1.53 0	1.14 0	2.80 0	.43 0	32.61 4.27
1944 P Q	.42 0	2.48 .02	3.33 .06	6.11 .56	5.78 .17	1.99 .01	1.84 0	2.40 0	1.67 0	1.69 0	2.28 T	1.30 0	31.29 .82
1945 P Q	.36 0	1.19 * .14	6.59 .03	4.25 .10	4.87 .44	8.42 .14	.99 0	4.85 .04	6.94 .02	2.41 .03	2.12 T	2.38 * .19	45.37 1.13
1946 P Q	1.56 .04	2.86 .63	2.49 .09	1.68 0	7.36 .03	3.50 .10	1.78 0	1.99 0	1.84 0	3.35 0	2.95 0	1.98 0	33.34 .89
1947 P Q	2.75 .03	.25 0	1.52 0	7.76 .24	3.89 0	4.36 .25	2.35 0	4.33 .04	5.57 0	1.88 0	1.56 0	2.05 0	38.27 .56
1948 P Q	1.53 .11	2.14 * .23	4.39 .36	4.93 1.58	3.29 0	4.57 0	3.68 0	1.67 0	4.10 0	2.33 0	3.31 0	2.83 .02	38.77 2.30
1949 P Q	7.11 1.30	3.14 .59	3.25 .26	2.37 0	3.01 0	4.88 0	2.72 0	1.88 0	.82 0	8.26 0	1.83 0	3.87 .14	43.14 2.29
1950 P Q	8.89 3.01	4.28 * .63	2.66 .06	4.99 .46	2.10 0	6.90 1.35	3.41 T	3.03 0	6.91 .02	1.65 0	4.19 .01	1.58 0	50.59 5.54
1951 P Q	1.81 T	4.32 * .32	1.69 0	2.58 0	4.31 0	4.76 .06	4.78 .46	1.97 0	1.72 0	2.57 0	2.19 0	2.31 * .55	35.01 1.39
1952 P Q	2.45 .01	2.05 .04	3.15 .03	4.92 .11	4.23 0	9.00 .38	2.68 0	2.73 0	3.72 0	1.34 0	3.05 0	1.52 0	40.84 .57
1953 P Q	1.93 0	1.36 0	5.96 .50	2.07 .01	3.41 T	4.41 0	6.65 T	1.84 0	.89 0				28.52 .51
P													
Q													
P													
Q													
P													
Q													
P													
Q													
** Av. P	2.61	2.45	3.10	4.06	4.86	5.09	3.30	2.74	3.38	2.55	2.75	1.93	38.82
** Av. Q	.41	.24	.11	.32	.39	.21	.13	.01	T	T	T	.08	1.90
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U. S. W. B. station 8 miles from farm; 1941-54 project records).

LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 1.96 ac.

SHAPE: Roughly rectangular, about 230 ft. wide and 370 ft. long.

SLOPES: 9% is in 0-2% class; 91% in 2-6%. Aspect S.

SOILS: Parent material - glacial till. Av. depth of topsoil - 8.5 inches. Sidell silt loam, friable silty clay loam subsoil, well-drained.

EROSION: 1 and + - 11%; 2 - 89%.

LAND CAPABILITY: I - 9%; II - 91%.

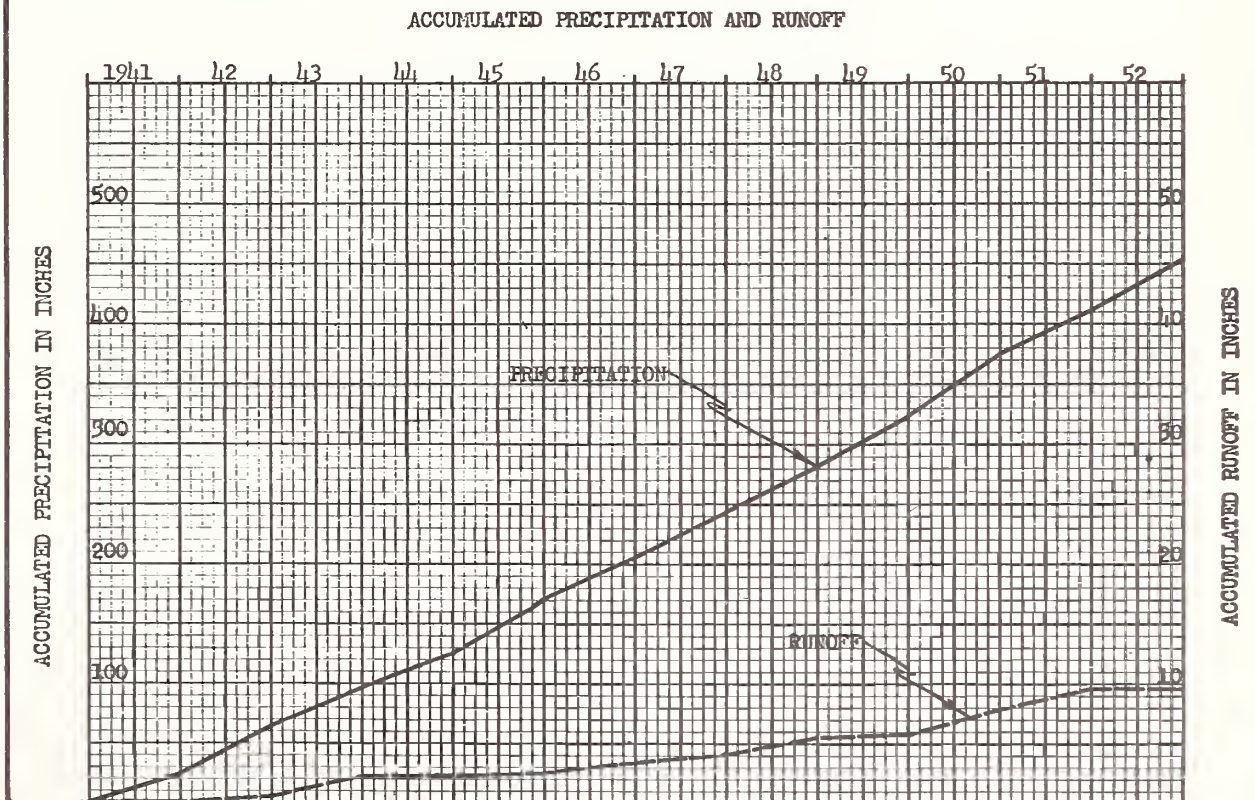
SURFACE DRAINAGE: Good, length of principal waterway - 400 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2.5 ft. type H flume and waterstage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farmed with conservation practices including contouring, heavy fertilizing, and residue management thereafter. 1942-45 - rotation of corn, wheat, meadow beginning with meadow. 1946-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Lafayette, Ind., Watershed 7

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.32 0	3.37 .36	5.07 1.77	0.11 0	3.02 0	1.00 T	4.86 .82	3.29 T	1.95 0	24.99 2.95
1941 P Q	0.84 0	0.33 0	1.28 0	2.62 0	2.61 0	3.78 0	.98 0	1.63 0	1.50 0	6.33 0	2.77 0	.97 0	25.64 0
1942 P Q	1.12 0	3.29 .01	2.86 0	2.65 0	3.07 0	4.02 0	8.50 .42	3.39 .02	2.32 0	1.47 0	3.95 0	.97 0	37.61 .45
1943 P Q	.70 0	.94 0	2.16 T	2.37 0	11.50 1.02	3.55 .17	3.44 .47	1.69 0	1.47 0	1.07 0	2.56 0	.43 0	31.88 1.66
1944 P Q	.42 0	2.48 0	3.46 0	6.12 T	5.54 .03	1.84 0	1.66 0	2.27 0	1.68 0	1.67 0	2.07 0	1.30 0	30.51 .03
1945 P Q	.36 0	1.19 .16	6.58 0	4.08 0	5.14 0	8.60 .01	1.02 0	4.76 .16	6.88 0	2.37 0	1.90 0	2.38 * .05	45.26 .38
1946 P Q	1.56 0	2.86 * .31	2.49 0	1.76 0	7.45 0	3.63 .37	1.78 0	2.03 0	1.76 .01	3.21 0	2.91 0	1.98 0	33.42 .69
1947 P Q	2.75 0	.25 0	1.57 T	7.53 0	3.81 0	4.62 .28	2.50 .05	4.15 # .47	5.67 .02	1.87 0	1.51 0	2.05 0	38.28 .82
1948 P Q	1.53 .01	2.14 .23	4.36 .01	4.86 1.00	3.40 0	4.57 .05	3.57 0	1.85 0	4.21 .01	2.41 0	3.15 0	2.83 .06	38.88 1.37
1949 P Q	7.11 .08	3.14 .35	3.06 0	2.29 0	2.88 0	4.81 0	2.73 0	1.83 0	.87 0	8.35 0	1.82 0	3.87 0	42.76 .43
1950 P Q	8.89 .44	4.28 .07	2.66 0	4.96 .07	2.08 0	6.88 1.48	3.51 .01	2.99 0	7.09 .06	1.65 0	4.19 0	1.58 0	50.76 2.13
1951 P Q	1.81 .02	4.32 * .49	1.69 0	2.50 0	4.25 0	4.76 .21	4.94 .87	1.89 0	1.90 0	2.55 0	2.19 0	2.31 0	35.11 1.59
1952 P Q	2.45 0	2.05 .04	3.15 0	4.90 0	4.29 0	9.34 0	2.84 0	2.80 0	3.83 T	1.35 0	3.05 0	1.52 0	41.57 .04
1953 P Q  P Q  P Q  P Q  P Q	1.91 0	1.26 T	5.95 0	2.01 0	3.40 0	4.41 0	6.65 0	1.84 0	.89 0				28.32 T
** Av. P ** Av. Q	2.61 .05	2.45 .15	3.09 T	4.00 .10	4.86 .10	5.15 .23	3.32 .17	2.70 .06	3.43 .01	2.54 0	2.66 0	1.93 .01	38.74 .88
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B. station 8 miles from farm; 1941-54 project records).



LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 1.96 ac.

SHAPE: Roughly rectangular, about 240 ft. wide and 350 ft. long.

SLOPES: 47% is in 0-2% class; 52% in 2-6%; 1% in 6 + %. Aspect S-SW.

SOILS: Parent material - glacial till. Av. depth of topsoil - 8.5 inches. 75% Sidell silt loam, friable silty clay loam subsoil, well-drained; 25% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained.

EROSION: 1 and + - 2%; 2 - 98%.

LAND CAPABILITY: I - 25%; II - 74%; III - 1%.

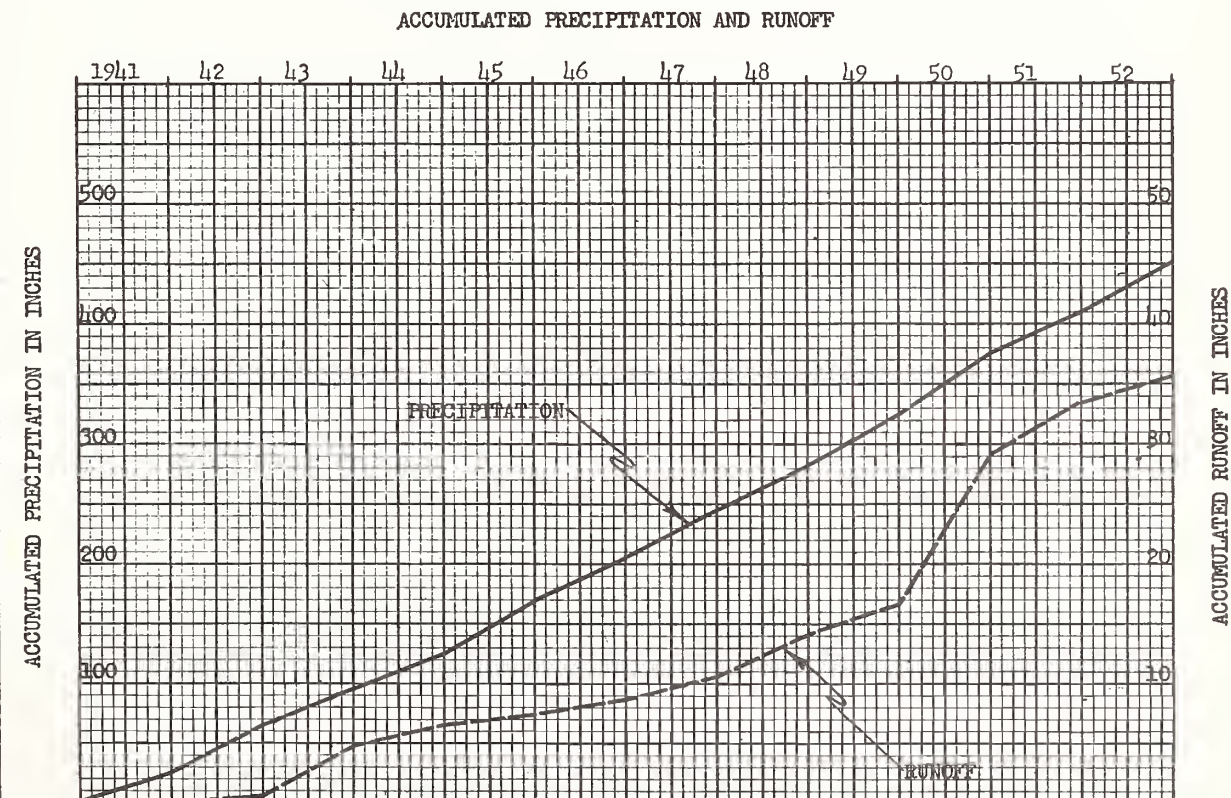
SURFACE DRAINAGE: Good, length of principal waterway - 450 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2.5 ft. H type flume and waterstage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farming with prevailing practices continued thereafter. 1942-45 - rotation of corn, wheat, meadow beginning with meadow. 1946-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Lafayette, Ind., Watershed 8

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P				2.32	3.37	5.07	0.11	3.02	1.00	4.86	3.29	1.95	24.99
Q				0	.19	1.43	0	.02	.05	.95	.03	0	2.67
1941 P	0.84	0.33	1.28	2.62	2.61	3.78	.98	1.63	1.50	6.33	2.77	.97	25.64
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1942 P	1.12	3.29	2.86	2.65	3.07	4.02	8.50	3.39	2.32	1.47	3.95	.97	37.61
Q	0	0	0	0	0	0	.41	.03	0	0	0	0	.44
1943 P	.70	.94	2.16	2.37	11.50	3.55	3.44	1.69	1.47	1.07	2.56	.43	31.88
Q	0	0	0	0	3.99	.17	.32	.02	0	0	0	0	4.50
1944 P	.42	2.48	3.46	6.12	5.54	1.84	1.66	2.27	1.68	1.67	2.07	1.30	30.51
Q	0	T	.14	.57	1.04	.04	.01	0	0	0	0	0	1.80
1945 P	.36	1.19	6.58	4.08	5.14	8.60	1.02	4.76	6.88	2.37	1.90	2.38	45.26
Q	0	.16	0	0	0	.04	0	.36	.06	T	0	0	.62
1946 P	1.56	2.86	2.49	1.76	7.45	3.63	1.78	2.03	1.76	3.21	2.91	1.98	33.42
Q	0	.45	.01	0	0	.58	0	0	.18	.03	T	0	1.25
1947 P	2.75	.25	1.57	7.53	3.81	4.62	2.50	4.15	5.67	1.87	1.51	2.05	38.28
Q	.05	0	0	.22	0	.47	.16	.69	.40	0	0	0	1.99
1948 P	1.53	2.14	4.36	4.86	3.40	4.57	3.57	1.85	4.21	2.41	3.15	2.83	38.88
Q	.05	* .46	.30	2.32	.05	.13	0	0	.04	0	0	.15	3.50
1949 P	7.11	3.14	3.06	2.29	2.88	4.81	2.73	1.83	.87	8.35	1.82	3.87	42.76
Q	*1.15	*1.02	.21	0	0	T	0	0	0	T	0	*.15	2.53
1950 P	8.89	4.28	2.66	4.96	2.08	6.88	3.51	2.99	7.09	1.65	4.19	1.58	50.76
Q	*5.18	*1.42	.39	1.18	0	2.53	.14	0	1.65	0	T	0	12.49
1951 P	1.81	4.32	1.69	2.50	4.25	4.76	4.94	1.89	1.90	2.55	2.19	2.31	35.11
Q	.44	*1.25	0	0	0	.42	1.41	0	0	0	0	*.72	4.24
1952 P	2.45	2.05	3.15	4.90	4.29	9.34	2.84	2.80	3.83	1.35	3.05	1.52	41.57
Q	.05	0	0	.09	0	1.74	0	.01	.46	0	0	0	2.35
1953 P	1.91	1.26	5.95	2.01	3.40	4.41	6.65	1.84	.89				28.32
Q	0	0	.31	.09	.01	T	*.24	0	0				.65
P													
Q													
P													
Q													
P													
Q													
P													
Q													
**Av. P	2.61	2.45	3.09	4.00	4.86	5.15	3.32	2.70	3.43	2.54	2.66	1.93	38.74
**Av. Q	.63	.43	.10	.40	.46	.56	.22	.10	.25	T	T	.09	3.24
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B. station 8 miles from farm; 1941-54 project records).



LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette, Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 2.06 ac.

SHAPE: Roughly rectangular, about 270 ft. wide and 330 ft. long.

SLOPES: 50% is in 0-2% class; 50% in 2-6%. Aspect N.

SOILS: Parent material - glacial till. Av. depth of topsoil - 9.0 inches. 28% Sidell silt loam, friable silty clay loam subsoil, well-drained; 6% Dana silt loam, friable topsoil, silty clay loam subsoil, moderately well-drained; 32% Raub silt loam; friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained; 34% Chalmers silty clay loam, medium to

EROSION: 1 and + - 16%; 2 - 84%.  
/ coarse granular structured topsoil, heavy  
/ silty clay loam subsoil, very poorly drained

LAND CAPABILITY: I - 12%; II - 88%.

SURFACE DRAINAGE: Good, length of principal waterway - 460 ft.

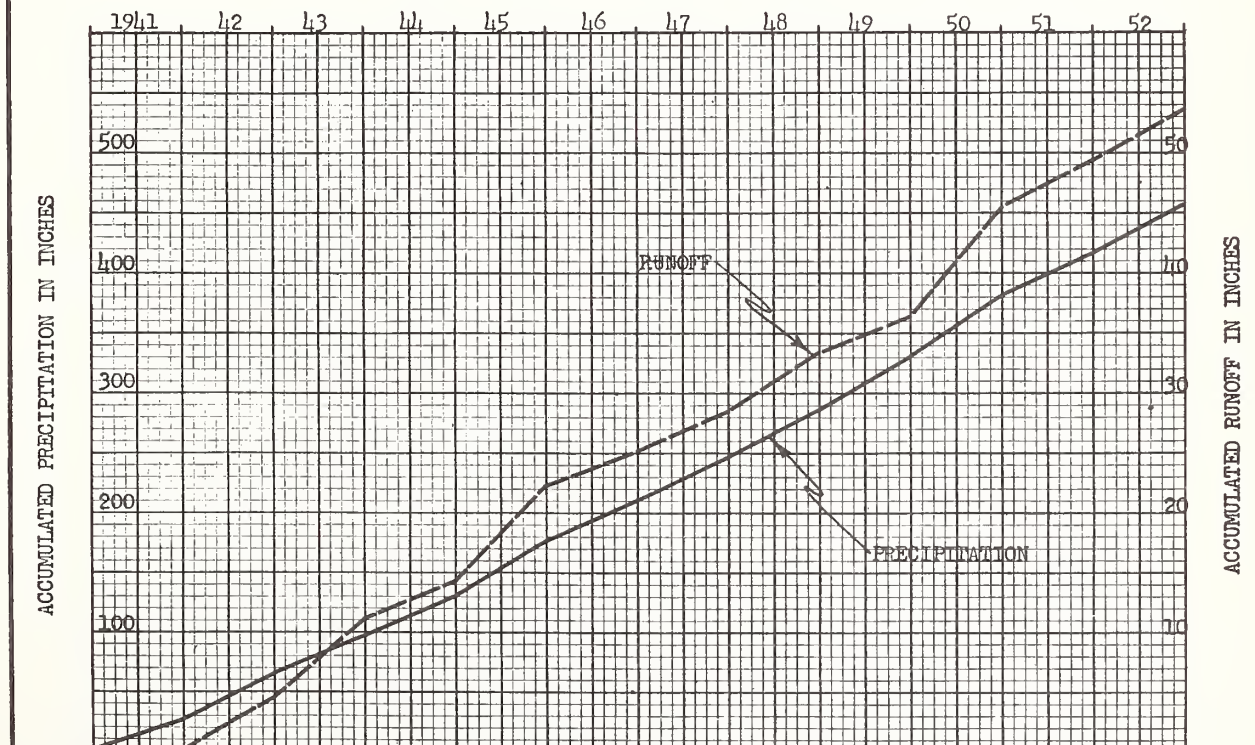
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farming with prevailing practices continued thereafter. 1942-44 - rotation of corn, wheat, meadow beginning with corn. 1945-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.

ACCUMULATED PRECIPITATION AND RUNOFF





## Lafayette, Ind., Watershed 10

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.25 0	3.63 T	4.85 .02	0.10 0	2.76 0	1.10 0	4.75 .01	3.12 T	2.18 0	24.74 .03
1941 P Q	0.92 0	0.33 0	1.42 0	2.60 0	2.80 0	3.53 0	1.12 0	1.59 0	1.66 0	6.38 T	2.86 T	.96 0	26.17 T
1942 P Q	1.14 0	3.23 .04	2.94 .05	2.56 .17	3.03 0	4.19 1.49	8.69 2.37	3.50 .46	2.53 .02	1.53 0	3.99 .03	1.06 * .16	38.44 4.79
1943 P Q	.82 .15	.98 .25	2.26 .10	2.10 0	11.56 5.75	4.07 .09	3.95 .06	2.07 .01	1.59 0	1.16 0	2.68 0	.43 0	33.67 6.41
1944 P Q	.38 0	2.55 T	3.37 .07	6.22 2.60	5.88 .34	2.10 T	1.71 0	2.47 0	1.75 0	1.62 0	2.33 0	1.51 0	31.89 3.01
1945 P Q	.42 0	1.52 * .10	6.49 .05	3.81 .15	4.99 .59	8.77 2.84	1.13 T	4.77 .96	6.94 1.72	2.46 .79	2.06 .04	2.38 * .72	45.74 7.96
1946 P Q	1.56 * .63	2.86 1.22	2.47 .03	1.77 0	7.48 .08	3.65 .91	1.89 0	2.30 0	1.75 0	3.41 0	2.95 0	1.98 0	34.07 2.87
1947 P Q	2.75 .47	.25 0	1.53 .09	7.46 1.60	3.87 .03	4.72 1.09	2.42 0	4.02 T	5.38 .04	1.97 0	1.54 0	2.05 0	37.96 3.32
1948 P Q	1.53 .26	2.14 *1.11	4.67 1.48	4.93 2.08	3.32 .01	4.40 0	3.48 0	2.46 0	4.07 T	2.42 T	3.35 T	2.83 .04	39.60 4.98
1949 P Q	7.11 1.47	3.14 .84	3.08 .28	2.40 0	2.79 0	4.36 .26	2.78 .02	1.82 .04	.87 0	3.37 .03	1.84 0	3.87 .04	42.43 2.98
1950 P Q	8.89 2.70	4.28 1.05	2.66 .17	4.96 .79	2.20 0	7.13 2.82	3.60 .41	2.92 0	7.01 .82	1.61 T	4.19 .37	1.58 .07	51.03 9.20
1951 P Q	1.81 * .81	4.32 *2.10	1.69 0	2.57 0	4.56 .02	4.51 .19	5.06 .47	2.06 0	1.89 0	2.49 0	2.19 0	2.31 * .09	35.46 3.68
1952 P Q	2.45 .24	2.05 .49	3.15 .56	4.75 .79	4.04 0	9.59 2.23	2.87 0	2.71 0	3.78 0	1.35 0	3.05 0	1.52 0	41.31 4.31
1953 P Q	1.91 0	1.26 T	5.95 2.02	2.01 .13	3.05 T	4.40 .22	6.65 1.01	1.84 .24	.89 0				27.96 3.62
P Q													
P Q													
P Q													
P Q													
P Q													
*** Av. P *** Av. Q	2.62 .61	2.48 .65	3.12 .26	3.96 .74	4.89 .62	5.23 1.08	3.42 .30	2.83 .13	3.41 .24	2.58 .07	2.74 .04	1.96 .10	39.24 4.84

Notes: \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B station 8 miles from farm; 1941-54 project records)

LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 2.05 ac.

SHAPE: Fan, about 250 ft. wide and 350 ft. long.

SLOPES: 58% is in 0-2% class; 42% in 2-6%. Aspect NW.

SOILS: Parent material - glacial till. Av. depth of topsoil - 8.5 inches. 43% Sidell silt loam, friable silty clay loam subsoil, well-drained; 36% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained; 21% Chalmers silty clay loam, medium to coarse granular structured topsoil, heavy silty clay loam subsoil, very poorly drained.

EROSION: 1 and + - 8%; 2 - 92%.

LAND CAPABILITY: I - 11%; II - 89%.

SURFACE DRAINAGE: Good, length of principal waterway - 440 ft.

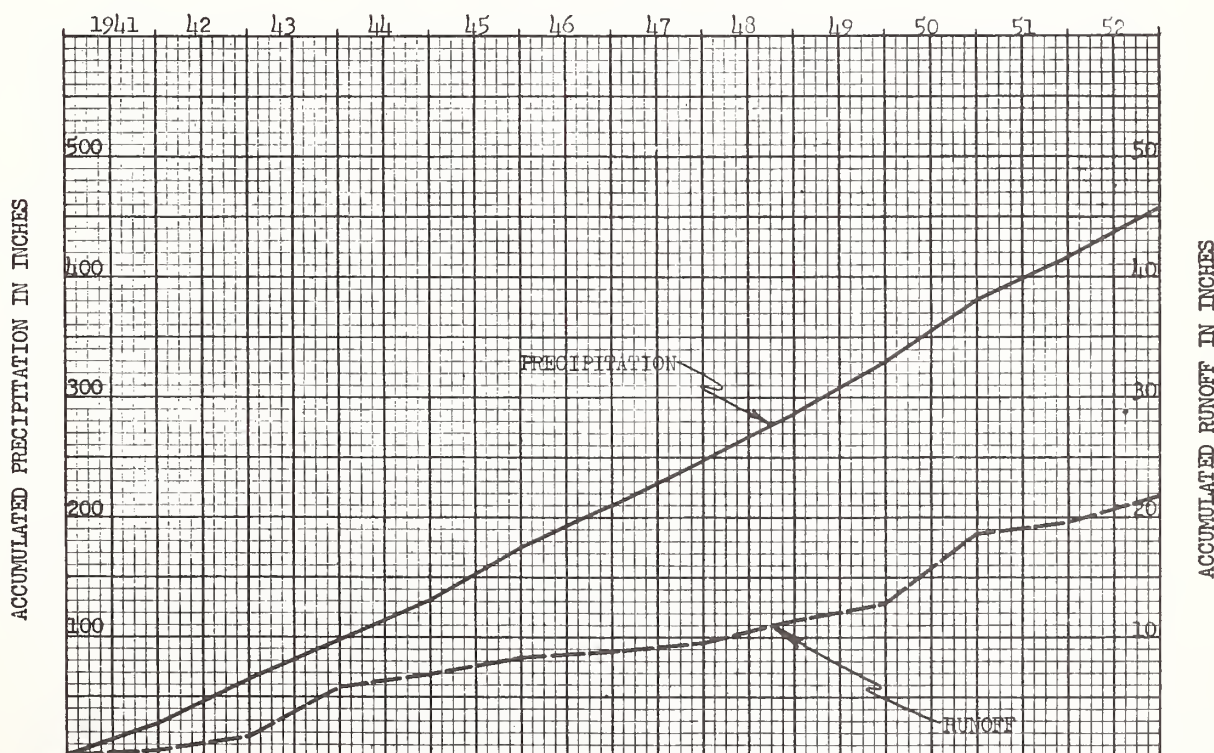
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farmed with conservation practices including contouring, heavy fertilizing, and residue management thereafter. 1942-46 - rotation of corn, wheat, meadow beginning with wheat. 1947-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Lafayette, Ind., Watershed 11**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.25 0	3.63 T	4.85 .03	0.10 0	2.76 0	1.10 0	4.75 .01	3.12 T	2.18 0	24.74 .04
1941 P Q	0.92 0	0.33 0	1.42 0	2.60 0	2.80 0	3.53 0	1.12 0	1.59 0	1.66 0	6.38 .39	2.86 .14	.96 0	26.17 .53
1942 P Q	1.14 T	3.23 .29	2.94 .06	2.56 .26	3.08 0	4.19 0	8.69 .56	3.50 0	2.53 0	1.53 0	3.99 0	1.06 0	38.44 1.17
1943 P Q	.82 0	.98 T	2.26 .03	2.10 0	11.56 4.03	4.07 0	3.95 .13	2.07 0	1.59 0	1.16 0	2.68 0	.43 0	33.67 4.19
1944 P Q	.38 0	2.55 0	3.37 T	6.22 1.05	5.88 .03	2.10 T	1.71 0	2.47 0	1.75 0	1.62 0	2.33 0	1.51 0	31.89 1.08
1945 P Q	.42 0	1.52 .51	6.49 .01	3.81 .02	4.99 .21	8.77 .19	1.13 0	4.77 .05	6.94 .09	2.46 .10	2.06 0	2.38 .09	45.74 1.27
1946 P Q	1.56 .03	2.86 .47	2.47 .02	1.77 0	7.48 .03	3.65 .01	1.89 0	2.30 0	1.75 T	3.41 T	2.95 0	1.98 0	34.07 .56
1947 P Q	2.75 .03	.25 0	1.53 .01	7.46 .46	3.87 T	4.72 .32	2.42 T	4.02 .01	5.38 0	1.97 0	1.54 0	2.05 0	37.96 .83
1948 P Q	1.53 .02	2.14 .05	4.67 .15	4.93 1.05	3.32 T	4.40 .38	3.48 T	2.46 T	4.07 0	2.42 0	3.35 0	2.83 .05	39.60 1.70
1949 P Q	7.11 *1.09	3.14 .50	3.08 .06	2.40 0	2.79 0	4.36 0	2.78 0	1.82 0	.87 0	8.37 T	1.84 0	3.87 T	42.43 1.65
1950 P Q	8.89 *3.61	4.28 * .58	2.66 .10	4.96 .54	2.20 0	7.13 .09	3.60 .17	2.92 0	7.01 .47	1.61 0	4.19 .04	1.58 .02	51.03 5.62
1951 P Q	1.81 .02	4.32 * .87	1.69 0	2.57 0	4.56 0	4.51 .05	5.06 .04	2.06 0	1.89 0	2.49 0	2.19 0	2.31 .02	35.46 1.00
1952 P Q	2.45 0	2.05 T	3.15 .01	4.75 T	4.04 0	9.59 2.13	2.87 0	2.71 0	3.78 0	1.35 0	3.05 0	1.52 0	41.31 2.14
1953 P Q	1.91 0	1.26 0	5.95 .19	2.01 .02	3.05 T	4.40 0	6.65 T	1.84 0	.89 0				27.96 .21
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
** Av. P ** Av. Q	2.62 .44	2.48 .30	3.12 .04	3.96 .31	4.89 .39	5.23 .29	3.42 .08	2.83 .01	3.41 .05	2.58 .01	2.74 T	1.96 .02	39.24 1.94
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B. station 8 miles from farm; 1941-54 project records).



LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 3.37 ac.

SHAPE: Roughly rectangular, about 300 ft. wide and 490 ft. long.

SLOPES: 67% is in 0-2% class; 29% in 2-6%; 4% in 6 + %.

SOILS: Parent material - glacial till. Av. depth of topsoil - 8.0 inches. 26% Sidell silt loam; friable silty clay loam subsoil, well-drained; 63% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained; 11% Chalmers silty clay loam, medium to coarse granular structured topsoil, heavy silty clay loam subsoil, very poorly drained.

EROSION: 2 - 100%.

LAND CAPABILITY: I - 5%; II - 91%; III - 4%.

SURFACE DRAINAGE: Good, length of principal waterway - 650 ft.

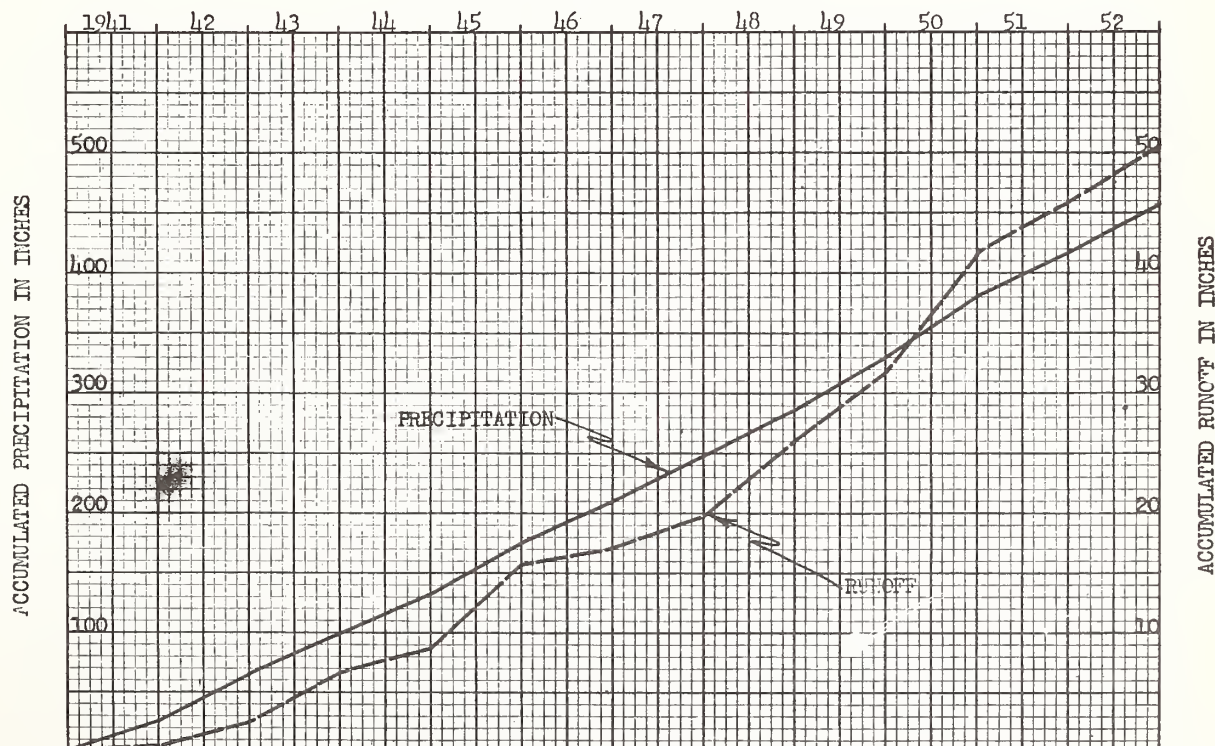
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farming with prevailing practices continued thereafter. 1942-46 - rotation of corn, wheat, meadow beginning with wheat. 1947-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Lafayette, Ind., Watershed 12

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.25 0	3.63 T	4.85 .13	0.10 0	2.76 T	1.10 T	4.75 .05	3.12 T	2.18 T	24.74 .18
1941 P Q	0.92 0	0.33 0	1.42 0	2.60 .01	2.80 0	3.53 T	1.12 0	1.59 0	1.66 0	6.38 .22	2.86 .19	.96 0	26.17 .42
1942 P Q	1.14 0	3.23 .17	2.94 .10	2.56 .37	3.08 T	4.19 .01	8.69 1.22	3.50 .01	2.53 0	1.53 0	3.99 T	1.06 0	38.44 1.88
1943 P Q	.82 0	.98 0	2.26 .04	2.10 0	11.56 4.38	4.07 0	3.95 .17	2.07 0	1.59 0	1.16 0	2.68 0	.43 0	33.67 4.59
1944 P Q	.38 0	2.55 0	3.37 0	6.22 1.77	5.88 .14	2.10 .01	1.71 T	2.47 .01	1.75 0	1.62 .02	2.33 0	1.51 0	31.89 1.95
1945 P Q	.42 0	1.52 * .92	6.49 1.07	3.81 .87	4.99 1.18	8.77 1.56	1.13 0	4.77 .20	6.94 .33	2.46 .21	2.06 T	2.38 * .52	45.74 6.86
1946 P Q	1.56 .09	2.86 *1.01	2.47 .12	1.77 0	7.48 .10	3.65 .01	1.89 0	2.30 0	1.75 0	3.41 0	2.95 0	1.98 0	34.07 1.33
1947 P Q	2.75 .02	.25 0	1.53 T	7.46 1.11	3.87 T	4.72 .71	2.42 T	4.02 # .29	5.38 # .52	1.97 0	1.54 0	2.05 .01	37.96 2.66
1948 P Q	1.53 .33	2.14 *1.08	4.67 1.17	4.93 2.07	3.32 T	4.40 .72	3.48 .21	2.46 .30	4.07 .01	2.42 T	3.35 .03	2.83 * .42	39.60 6.34
1949 P Q	7.11 *3.14	3.14 *1.71	3.08 .22	2.40 .02	2.79 .07	4.36 T	2.78 T	1.82 T	.87 T	8.37 .04	1.84 .01	3.87 * .58	42.43 5.74
1950 P Q	8.89 *4.66	4.28 *1.59	2.66 .40	4.96 1.18	2.20 0	7.13 .30	3.60 .35	2.92 0	7.01 * .98	1.61 0	4.19 .34	1.58 .35	51.03 10.15
1951 P Q	1.81 * .35	4.32 #1.91	1.69 .02	2.57 0	4.56 T	4.51 .43	5.06 1.15	2.06 T	1.89 0	2.49 0	2.19 0	2.31 T	35.46 3.86
1952 P Q	2.45 .21	2.05 * .40	3.15 .25	4.75 .25	4.04 0	9.59 3.92	2.87 .07	2.71 0	3.78 T	1.35 0	3.05 0	1.52 T	41.31 5.10
1953 P Q  P Q  P Q  P Q	1.91 0	1.26 0	5.95 .76	2.01 .25	3.05 .17	4.40 .28	6.65 .59	1.84 .18	.89 0				27.96 2.23
** Av. P ** Av. Q	2.62 .80	2.48 .80	3.12 .31	3.96 .69	4.89 .53	5.23 .70	3.42 .29	2.83 .07	3.41 .17	2.58 .02	2.74 .03	1.96 .17	39.24 4.58
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B. station 8 miles from farm; 1941-54 project records).

LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 3.02 ac.

SHAPE: Fan, about 300 ft. wide and 450 ft. long.

SLOPES: 100% is in 0-2% class. Aspect E.

SOILS: Parent material - glacial till. Av. depth of topsoil - 9.5 inches. 3% Sidell silt loam, friable silty clay loam subsoil, well-drained; 77% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained; 20% Chalmers silty clay loam, medium to coarse granular structured topsoil, heavy silty clay loam subsoil, very poorly drained.

EROSION: 2 - 100%.

LAND CAPABILITY: I - 3%; II - 97%.

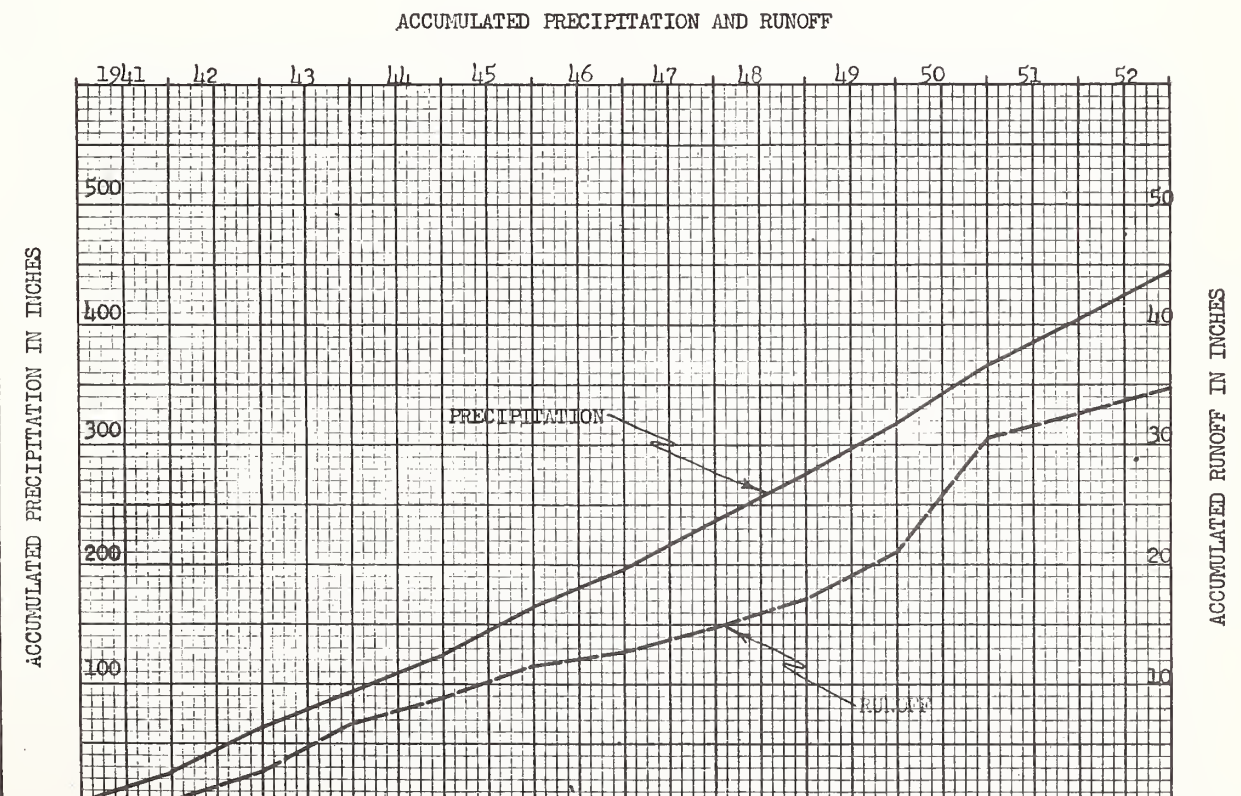
SURFACE DRAINAGE: Good, length of principal waterway - 530 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farming with prevailing practices continued thereafter. 1942-44 - rotation of corn, wheat, meadow beginning with corn. 1945-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.





**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Lafayette, Ind., Watershed 13

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.20 0	3.39 T	4.73 .04	0.10 0	2.61 0	0.91 0	4.67 T	2.94 0	1.95 0	23.50 .04
1941 P Q	0.84 0	0.33 0	1.28 0	2.54 0	2.45 0	3.89 0	.99 0	1.60 0	1.64 0	5.92 T	2.62 T	.97 0	25.07 T
1942 P Q	1.12 0	3.29 0	2.86 .09	2.60 .27	2.66 0	3.65 .45	8.36 1.73	3.49 .09	2.49 0	1.34 0	3.63 0	.97 0	36.46 2.63
1943 P Q	.70 0	.94 .08	2.16 .07	2.23 0	11.05 3.99	3.63 0	3.63 0	1.85 0	1.42 0	1.11 0	2.51 0	.43 0	31.66 4.14
1944 P Q	.42 0	2.48 0	2.68 0	5.67 1.74	5.72 .39	1.75 0	1.56 0	2.15 0	1.60 0	1.57 0	2.00 0	1.30 0	28.90 2.13
1945 P Q	.36 0	1.19 0	6.22 0	4.08 0	4.39 .26	7.76 1.38	.89 0	4.86 .15	6.76 .19	2.33 .17	2.00 0	2.38 *.33	43.22 2.48
1946 P Q	1.56 .38	2.86 .73	2.45 .05	1.54 0	6.86 .02	3.32 .05	1.79 0	2.35 0	1.79 0	3.17 0	2.86 0	1.98 0	32.53 1.23
1947 P Q	2.75 T	.25 0	1.67 .02	7.56 1.40	3.88 .03	4.72 .73	2.85 0	4.23 0	5.40 0	1.83 0	1.52 0	2.05 0	38.71 2.18
1948 P Q	1.53 .03	2.14 .27	4.56 *.50	4.75 1.57	3.35 0	4.43 0	3.62 0	1.64 0	4.21 0	2.35 0	3.21 0	2.83 0	38.62 2.37
1949 P Q	7.11 2.10	3.14 .96	3.07 .40	2.53 0	2.93 0	4.83 0	2.90 0	1.74 0	.75 0	8.20 0	1.82 0	3.87 .38	42.89 3.84
1950 P Q	8.89 5.99	4.28 .92	2.66 .34	4.91 .98	1.96 0	6.94 1.04	3.44 .01	2.91 0	6.95 .02	1.64 0	4.19 .05	1.58 .10	50.35 9.45
1951 P Q	1.81 .46	4.32 *1.59	1.69 0	2.48 0	4.35 0	4.64 0	4.66 .01	1.83 0	1.77 0	2.58 0	2.19 0	2.31 0	34.63 2.06
1952 P Q	2.45 .07	2.05 .33	3.15 .49	4.90 .53	4.19 0	8.88 .78	2.64 0	2.86 0	3.84 0	1.35 0	3.05 0	1.52 0	40.88 2.20
1953 P Q P Q P Q P Q P Q	1.93 0	1.36 0	5.96 .94	(Discontinued 4/10/56)									9.25 .94
**Av. P **Av. Q	2.61 .82	2.45 .44	3.02 .18	3.93 .59	4.67 .43	4.96 .40	3.30 .16	2.72 .02	3.36 .02	2.50 .02	2.63 T	1.93 .07	38.08 3.15
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B. station 8 miles from farm; 1941-54 project records).

**LOCATION:** Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

**AREA:** 2.35 ac.

**SHAPE:** Fan, about 240 ft. wide and 500 ft. long.

**SLOPES:** 51% is in 0-2% class; 44% in 2-6%; 5% in 6 + %. Aspect S.

**SOILS:** Parent material - glacial till. Av. depth of topsoil - 8.0 inches. 62% Sidell silt loam, friable silty clay loam subsoil, well-drained; 18% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained; 20% Chalmers silty clay loam, medium to coarse structured topsoil, heavy silty clay loam subsoil, very poorly drained.

**EROSION:** 1 and + - 10%; 2 - 88%; 3 - 2%.

**LAND CAPABILITY:** I - 31%; II - 64%; III - 5%.

**SURFACE DRAINAGE:** Good, length of principal waterway - 550 ft.

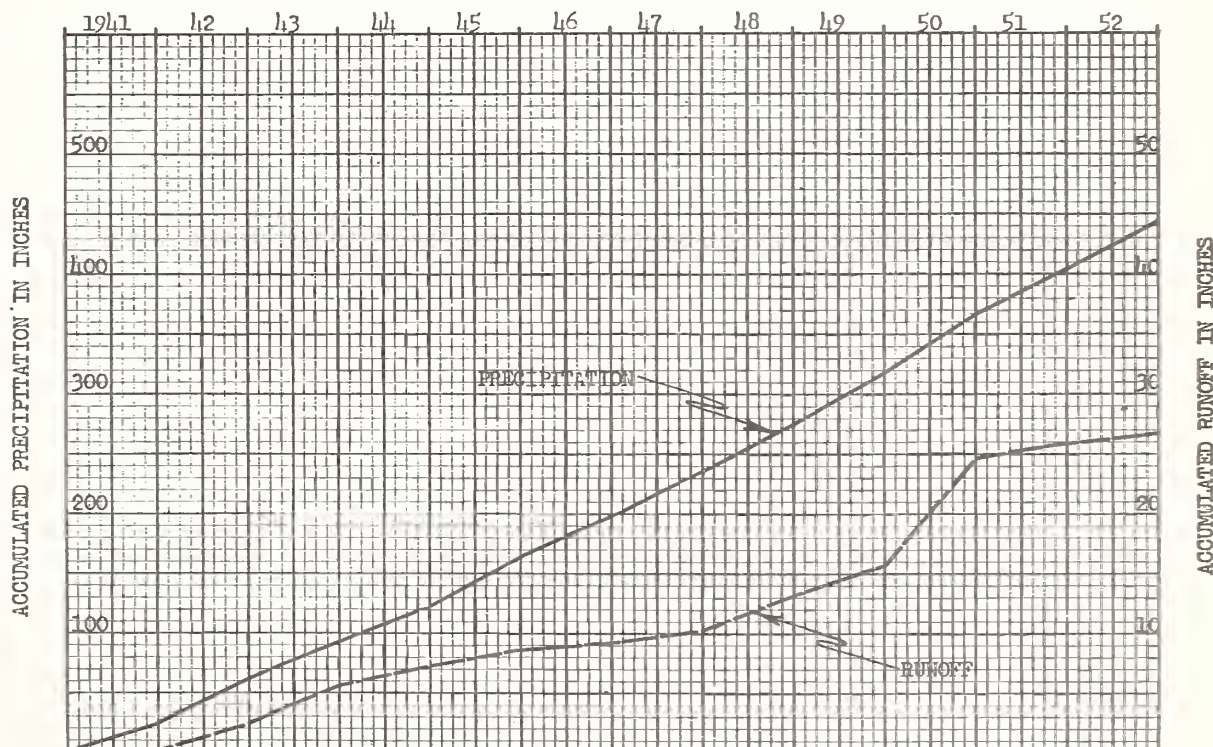
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 3 ft. R type flume and waterstage recorder; precipitation - recording gage.

**WATERSHED CONDITIONS:** 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farmed with conservation practices including contouring, heavy fertilizing and residue management thereafter. 1942-44 - rotation of corn, wheat, meadow beginning with corn. 1945-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.

**GENERALLY REPRESENTS:** Central Illinois - Northwestern Indiana Heavy Till Area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Lafayette, Ind., Watershed 11

<b>Month Year</b>	<b>Jan.</b>	<b>Feb.</b>	<b>Mar.</b>	<b>Apr.</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>Aug.</b>	<b>Sept.</b>	<b>Oct.</b>	<b>Nov.</b>	<b>Dec.</b>	<b>Year</b>
1940 P Q				2.20 T	3.39 .05	4.73 .85	0.10 0	2.61 T	0.91 .01	4.67 .35	2.94 .03	1.95 0	23.50 1.29
1941 P Q	0.84 0	0.33 0	1.28 0	2.54 0	2.45 0	3.89 T	.99 0	1.60 0	1.64 0	5.92 T	2.62 T	.97 0	25.07 T
1942 P Q	1.12 0	3.29 0	2.86 0	2.60 0	2.66 0	3.65 .63	8.36 1.67	3.49 .08	2.49 T	1.34 0	3.63 T	.97 0	36.46 2.38
1943 P Q	.70 0	.94 .06	2.16 T	2.23 0	11.05 3.32	3.63 T	3.63 0	1.85 0	1.42 0	1.11 0	2.51 0	.43 0	31.66 3.38
1944 P Q	.42 0	2.48 0	2.68 0	5.67 1.32	5.72 .20	1.75 0	1.56 0	2.15 0	1.60 0	1.57 0	2.00 0	1.30 0	28.90 1.52
1945 P Q	.36 0	1.19 0	6.22 0	4.08 0	4.39 .01	7.76 .97	.89 0	4.86 .09	6.76 .04	2.33 .02	2.00 0	2.38 *.25	43.22 1.38
1946 P Q	1.56 0	2.86 .40	2.45 0	1.54 0	6.86 T	3.32 .03	1.79 0	2.35 0	1.79 T	3.17 0	2.86 0	1.98 0	32.53 .43
1947 P Q	2.75 0	.25 0	1.67 .01	7.56 .62	3.88 .01	4.72 .34	2.85 0	4.23 T	5.40 T	1.83 0	1.52 0	2.05 0	38.71 .98
1948 P Q	1.53 0	2.14 .16	4.56 .67	4.75 2.26	3.35 0	4.43 0	3.62 0	1.64 0	4.21 0	2.35 0	3.21 0	2.83 0	38.62 3.09
1949 P Q	7.11 1.26	3.14 .83	3.07 .25	2.53 0	2.93 0	4.83 .02	2.90 0	1.74 0	.75 0	8.20 0	1.82 0	3.87 0	42.89 2.36
1950 P Q	8.89 4.87	4.28 1.11	2.66 .17	4.91 .89	1.96 0	6.94 2.03	3.44 .06	2.91 0	6.95 .01	1.64 0	4.19 0	1.58 0	50.35 9.14
1951 P Q	1.81 .27	4.32 *.93	1.69 0	2.48 0	4.35 0	4.64 0	4.66 .01	1.83 0	1.77 0	2.58 0	2.19 0	2.31 0	34.63 1.21
1952 P Q	2.45 0	2.05 0	3.15 .14	4.90 .67	4.19 0	8.88 .15	2.64 0	2.86 0	3.84 0	1.35 0	3.05 0	1.52 0	40.88 .96
1953 P Q  P Q  P Q  P Q  P Q	1.93 0	1.36 0	5.96 .78	2.07 .23	3.23 .01	4.23 .26	6.65 .02	1.84 0	.89 0				28.16 1.30
<b>** Av. P ** Av. Q</b>	2.61 .58	2.45 .32	3.02 .11	3.93 .52	4.67 .32	4.96 .38	3.30 .16	2.72 .02	3.36 T	2.50 T	2.63 T	1.93 .02	38.08 2.43
<b>Normal P</b>	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B. station 8 miles from farm; 1941-54 project records).

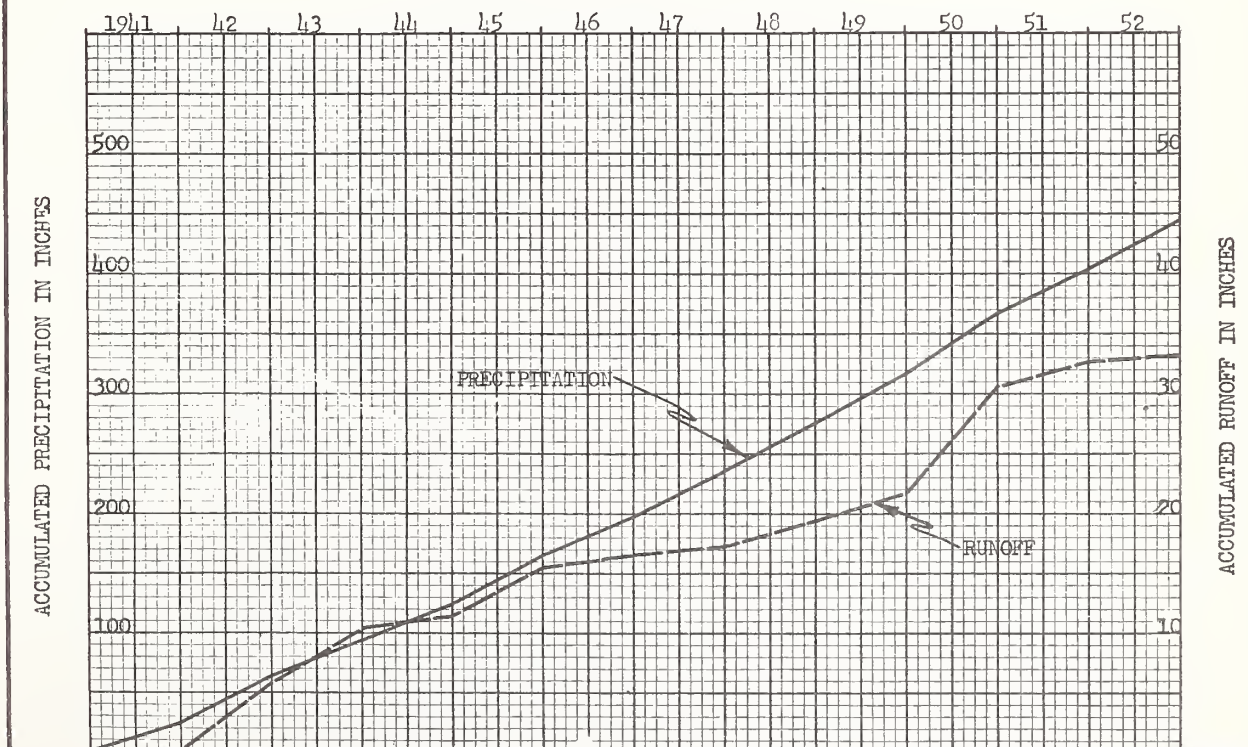


5-56

LAFAYETTE, INDIANA Watershed 15

LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.AREA: 3.59 ac.SHAPE: Roughly rectangular, about 310 ft. wide and 500 ft. long.SLOPES: 34% is in 0-2% class; 64% in 2-6%; 2% in 6 + %. Aspect SE.SOILS: Parent material - glacial till. Av. depth of topsoil - 8.5 inches. 87% Sidell silt loam, friable silty clay loam subsoil, well-drained; 12% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer with depth, imperfectly drained; 1% Chalmers silty clay loam, medium to coarse granular structured topsoil, heavy silty clay loam subsoil, very poorly drained.EROSION: 1 and + - 20%; 2 - 80%.LAND CAPABILITY: I - 32%; II - 66%; III - 2%.SURFACE DRAINAGE: Good, length of principal waterway - 600 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farming with prevailing practices continued thereafter. 1942-44 - rotation of corn, wheat, meadow beginning with corn. 1945-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Lafayette, Ind., Watershed 15

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.20 0	3.39 .01	4.73 1.02	0.10 0	2.61 T	0.91 T	4.67 # .36	2.94 .01	1.95 T	23.50 1.40
1941 P Q	0.84 0	0.33 0	1.28 0	2.54 0	2.45 0	3.89 T	.99 0	1.60 0	1.64 0	5.92 0	2.62 T	.97 0	25.07 T
1942 P Q	1.12 0	3.29 .02	2.86 0	2.60 0	2.66 0	3.65 1.16	8.36 3.92	3.49 .62	2.49 .03	1.34 0	3.63 T	.97 .07	36.46 5.82
1943 P Q	.70 * .14	.94 .25	2.16 .07	2.23 0	11.05 4.09	3.63 .03	3.63 .06	1.85 0	1.42 0	1.11 0	2.51 0	.43 0	31.66 4.64
1944 P Q	.42 0	2.48 0	2.68 0	5.67 .82	5.72 .18	1.75 0	1.56 0	2.15 0	1.60 0	1.57 0	2.00 0	1.30 0	28.90 1.00
1945 P Q	.36 0	1.19 .03	6.22 0	4.08 0	4.39 .07	7.76 1.14	.89 0	4.86 .96	6.76 1.00	2.33 .25	2.00 .03	2.38 * .53	43.22 4.01
1946 P Q	1.56 .05	2.86 .86	2.45 T	1.54 0	6.86 0	3.32 .11	1.79 0	2.35 0	1.79 .01	3.17 T	2.86 T	1.98 0	32.53 1.03
1947 P Q	2.75 .17	.25 0	1.67 .02	7.56 .23	3.88 .02	4.72 .28	2.85 0	4.23 .01	5.40 0	1.83 0	1.52 0	2.05 0	38.71 .73
1948 P Q	1.53 0	2.14 * .49	4.56 .09	4.75 1.65	3.35 0	4.43 0	3.62 0	1.64 0	4.21 0	2.35 0	3.21 0	2.83 0	38.62 2.23
1949 P Q	7.11 .68	3.14 .74	3.07 .12	2.53 0	2.93 0	4.83 # .32	2.90 .16	1.74 .07	.75 0	8.20 .01	1.82 0	3.87 T	42.89 2.10
1950 P Q	8.89 3.85	4.28 .71	2.66 0	4.91 .54	1.96 0	6.94 2.54	3.44 .45	2.91 0	6.95 .54	1.64 0	4.19 .04	1.58 0	50.35 8.67
1951 P Q	1.81 * .62	4.32 1.61	1.69 0	2.48 0	4.35 0	4.64 0	4.66 .14	1.83 0	1.77 0	2.58 0	2.19 0	2.31 0	34.63 2.37
1952 P Q	2.45 0	2.05 0	3.15 0	4.90 .24	4.19 0	8.88 .26	2.64 0	2.86 0	3.84 T	1.35 0	3.05 0	1.52 0	40.88 .50
1953 P Q	1.93 0	1.36 0	5.96 .27	2.07 .08	3.23 .09	4.23 .86	6.65 .99	1.84 0	.89 0				28.16 2.29
P													
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Q													
** Av. P ** Av. Q	2.61 .50	2.45 .43	3.02 .03	3.93 .32	4.67 .40	4.96 .53	3.30 .43	2.72 .15	3.36 .14	2.50 .02	2.63 .01	1.93 .05	38.08 3.01
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P-excellent; Q-good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B. station 8 miles from farm; 1941-54 project records).



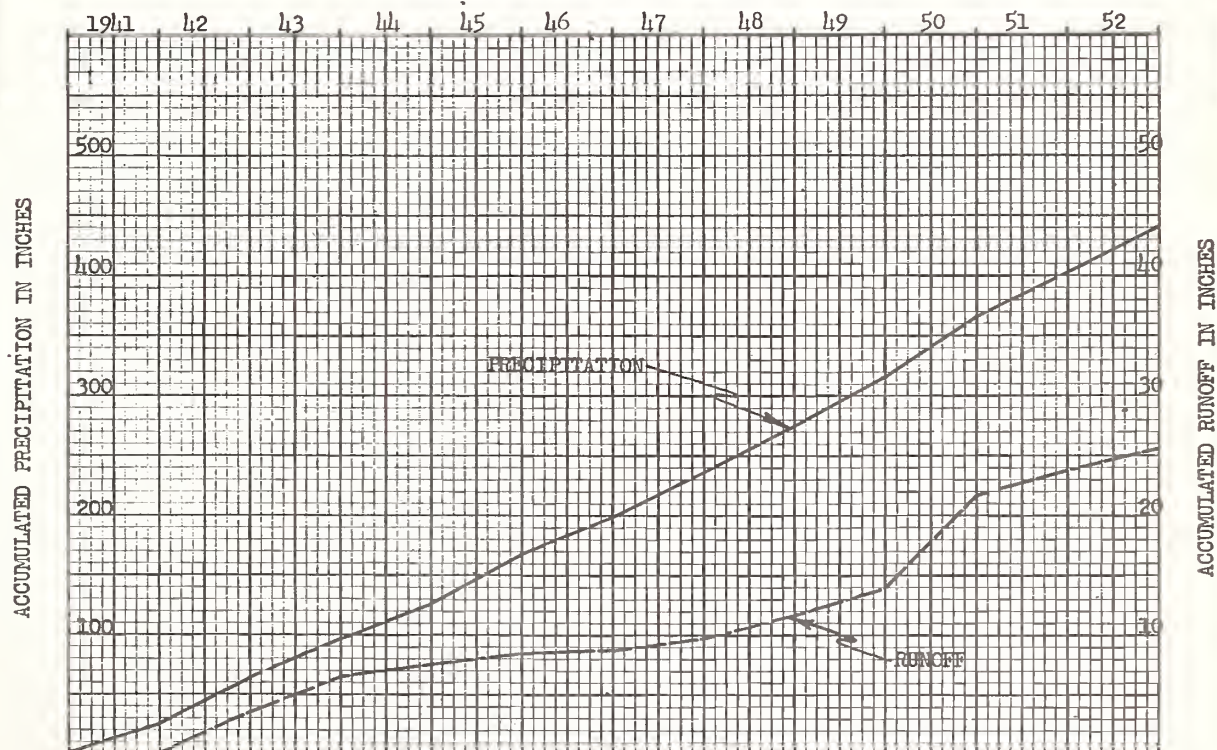
5-56

LAFAYETTE, INDIANA

Watershed 18

LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.AREA: 3.24 ac.SHAPE: Roughly round, about 400 ft. in diameter.SLOPES: 44% is in 0-2% class; 56% in 2-6%. Aspect E-SE.SOILS: Parent material - glacial till. Av. depth of topsoil 9.5 inches. 37% Sidell silt loam, friable silty clay loam subsoil, well-drained; 44% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained; 19% Chalmers silty clay loam, medium to coarse structured topsoil, heavy silty clay loam subsoil, very poorly drained.EROSION: 1 and + - 8%; 2 - 92%.LAND CAPABILITY: I - 6%; II - 94%.SURFACE DRAINAGE: Good, length of principal waterway - 550 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.WATERSHED CONDITIONS: 1940-41 - wheat, meadow farmed with prevailing practices (calibration period). Farmed with conservation practices including contouring, heavy fertilizing, and residue-management thereafter. 1942-44 - rotation of corn, wheat, meadow beginning with corn. 1945-53 - rotation of corn, soybeans, wheat, meadow beginning with corn.GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station



Lafayette, Ind., Watershed 18

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.19 0	3.25 .02	4.70 .17	0.11 0	2.72 0	1.02 0	4.69 .06	3.05 0	1.95 0	23.68 .25
1941 P Q	0.84 0	0.33 0	1.28 0	2.52 0	2.51 0	3.90 0	1.01 0	1.62 0	1.64 0	6.27 0	2.87 0	.87 0	25.66 0
1942 P Q	1.08 0	3.13 .01	2.76 .16	2.56 .69	2.82 0	3.85 .57	8.53 1.66	3.51 .15	2.72 .01	1.51 0	3.81 .01	.88 .08	37.16 3.34
1943 P Q	.70 0	.91 .08	2.06 .05	2.15 0	11.05 2.94	3.63 T	3.63 0	1.85 0	1.42 0	1.11 0	2.60 0	.42 0	31.53 3.07
1944 P Q	.44 0	2.25 0	3.22 T	5.91 .98	5.59 .11	1.79 0	1.66 0	2.18 0	1.61 0	1.55 0	1.84 0	1.10 0	29.14 1.09
1945 P Q	.30 0	1.19 .01	6.29 T	3.77 T	4.69 T	7.94 .62	1.02 0	4.81 .02	6.88 T	2.39 .01	2.03 0	2.35 *.21	43.66 .87
1946 P Q	1.57 .01	2.82 #.37	2.37 0	1.61 0	7.23 .02	3.27 .03	1.85 0	2.05 0	1.65 0	3.17 0	2.72 0	1.96 0	32.27 .43
1947 P Q	2.75 T	.25 0	1.57 .03	7.28 .47	3.81 .02	4.42 .33	2.63 T	4.14 0	5.01 0	1.74 0	1.50 0	1.98 0	37.08 .85
1948 P Q	1.56 .02	2.18 .15	4.33 .51	4.73 1.55	3.12 0	4.33 0	3.48 0	1.54 0	4.07 0	2.29 0	3.07 0	2.76 T	37.46 2.23
1949 P Q	7.11 1.10	3.14 .72	3.07 .22	2.29 0	2.74 0	4.75 T	2.77 0	1.84 0	.82 0	7.96 T	1.79 0	3.87 .05	42.15 2.09
1950 P Q	9.06 3.95	4.32 .83	2.66 .11	4.90 .58	2.05 0	6.80 2.05	3.32 .04	3.00 0	6.93 .04	1.61 0	4.19 .04	1.58 .01	50.42 7.65
1951 P Q *	1.81 .69	4.32 *1.53	1.69 0	2.41 0	4.26 T	4.43 .01	4.67 .04	1.82 0	1.69 0	2.42 0	2.19 0	2.31 0	34.02 2.27
1952 P Q	2.46 .01	2.05 .11	3.15 .27	4.50 .27	3.97 0	8.56 .70	2.59 0	2.72 0	3.61 0	1.30 0	3.05 0	1.52 0	39.48 1.36
1953 P Q	1.90 0	1.25 0	5.88 #.92	1.96 .11	3.11 T	4.18 .06	6.65 T	1.84 0	.89 0				27.66 1.09
P Q													
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	2.62 .53	2.41 .35	3.02 .12	3.83 .41	4.67 .28	4.89 .39	3.29 .16	2.68 .02	3.31 T	2.46 T	2.62 T	1.88 .03	37.68 2.29
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

Notes: # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41 nor part year amounts for 1953. Quality of records: P - excellent; Q - Good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B. station 8 miles from farm; 1941-54 project records).

LOCATION: Tippecanoe Co., Indiana; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.

AREA: 2.64 ac.

SHAPE: Diamond, about 260 ft. wide and 440 ft. long.

SLOPES: 57% is in 2-6% class; 43% in 6 + %. Aspect NW.

SOILS: Parent material - glacial till. Av. depth of topsoil 6.0 inches. 99% Sidell silt loam, friable silty clay loam subsoil, well-drained. 1% Chalmers silty clay loam, medium to coarse granular structured topsoil, heavy silty clay loam subsoil, very poorly drained.

EROSION: 2 - 95%; 3 - 5%.

LAND CAPABILITY: II - 57%; III - 43%.

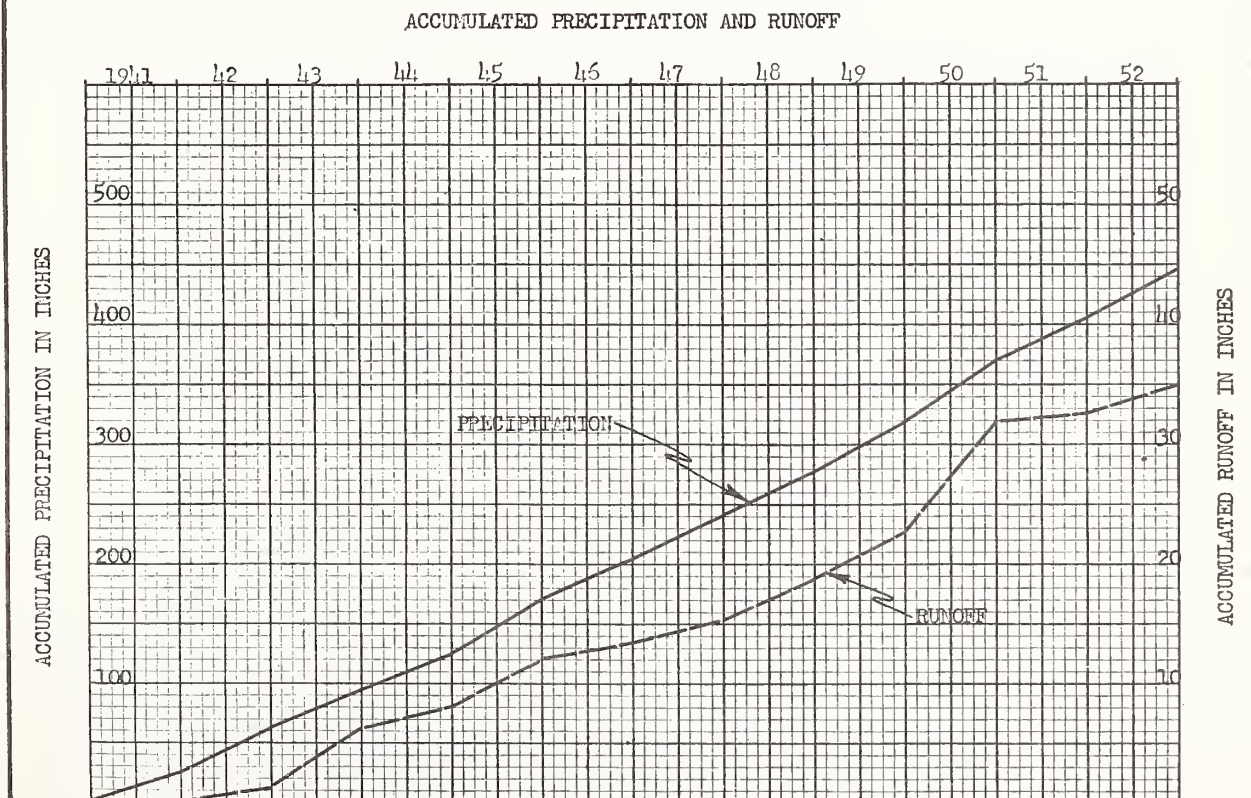
SURFACE DRAINAGE: Good, length of principal waterway - 650 ft.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1940-53 - blue grass pasture, reestablished by seeding and fertilization following crop rotation use.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Lafayette, Ind., Watershed 20**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.23 0	3.37 .08	4.47 1.03	0.10 0	2.63 0	1.04 0	4.58 .76	2.91 .03	1.95 0	23.28 1.90
1941 P Q	0.84 0	0.33 0	1.28 0	2.53 0	2.48 0	3.78 0	1.13 0	1.71 0	1.64 0	6.30 0	2.75 0	.97 0	25.74 0
1942 P Q	1.12 0	3.29 0	2.86 .04	2.56 .34	3.00 T	3.77 0	7.88 1.03	3.52 .04	2.61 0	1.11 0	3.76 .02	.97 0	36.45 1.47
1943 P Q	.70 0	.94 .01	2.16 0	2.27 0	11.42 #4.60	3.70 0	3.55 0	1.96 0	1.54 0	1.13 0	2.49 0	.43 0	32.29 4.61
1944 P Q	.42 0	2.48 0	3.36 0	6.26 1.75	5.57 .31	1.95 0	1.47 0	2.23 0	1.59 0	1.63 0	2.34 0	1.30 0	30.60 2.06
1945 P Q	.36 0	1.19 .05	6.54 # .10	4.17 # .91	5.00 .73	8.36 .64	.88 0	4.71 .49	7.00 .41	2.31 .34	1.97 .01	2.38 .21	44.87 3.89
1946 P Q	1.56 .49	2.86 .88	2.39 0	1.69 0	7.36 0	3.28 0	1.78 0	2.32 0	1.74 0	3.29 0	2.92 0	1.98 0	33.17 1.37
1947 P Q	2.75 T	.25 0	1.52 .04	7.35 1.22	3.63 .01	4.50 .49	2.56 0	4.06 T	4.96 .01	1.81 0	1.41 0	2.05 0	36.85 1.77
1948 P Q	1.53 T	2.14 .41	4.42 .58	4.77 2.62	3.31 0	4.52 0	3.52 0	1.81 0	3.95 .01	2.35 0	3.11 0	2.83 .01	38.26 3.63
1949 P Q	7.11 *2.67	3.14 # .79	2.88 .22	2.33 0	2.65 0	4.32 0	2.90 0	1.75 0	.84 0	8.18 .01	1.76 0	3.87 * .30	41.73 3.99
1950 P Q	8.89 *6.13	4.28 *1.34	2.66 # .23	4.91 .50	2.00 0	6.91 .26	3.39 .08	2.90 0	6.98 .64	1.63 0	4.19 .02	1.58 0	50.32 9.20
1951 P Q	1.81 .14	4.32 .30	1.69 0	2.49 0	4.48 0	4.43 0	4.78 .04	1.86 0	1.80 0	2.47 0	2.19 0	2.31 0	34.63 .48
1952 P Q	2.45 T	2.05 .29	3.15 .66	4.76 .34	4.03 0	8.82 1.17	2.68 0	2.88 0	3.68 .02	1.31 0	3.05 0	1.52 0	40.38 2.48
P													
Q													
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** Av. P	2.61	2.45	3.06	3.96	4.77	4.96	3.22	2.73	3.34	2.47	2.65	1.93	38.15
** Av. Q	.86	.37	.17	.70	.51	.23	.10	.05	.10	.03	T	.05	3.17
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41. Quality of Records: P - excellent; Q - good except during freezing periods. Normal P based on 75 yr. record (1880-1940 at Lafayette U.S.W.B. station 8 mi. from farm; 1941-54 project records).

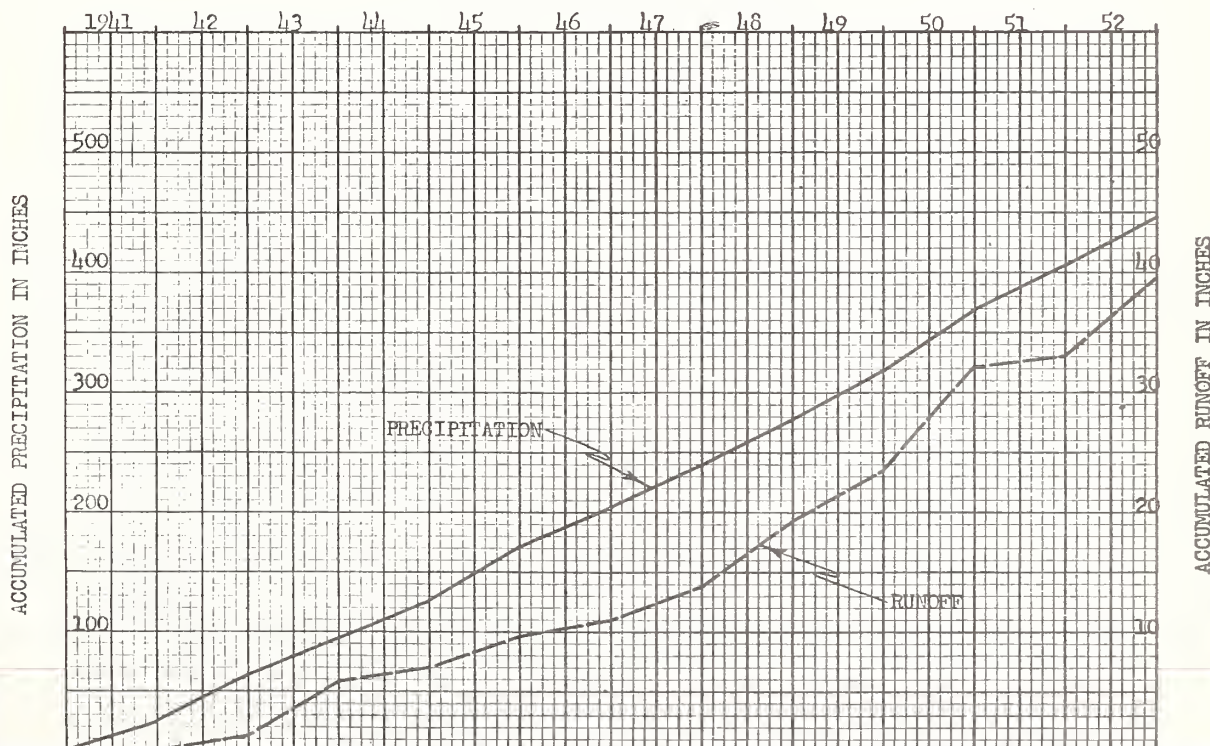


5-56

LAFAYETTE, INDIANA Watershed 25

LOCATION: Tippecanoe Co., Ind.; 8 mi. S. of Lafayette; Little Wea Cr., Wea Cr., Wabash R. Basin.AREA: 3.52 ac.SHAPE: Roughly rectangular, about 350 ft. wide and 440 ft. long.SLOPES: 29% is in 0-2% class; 61% in 2-6%; 10% in 6 + %. Aspect W.SOILS: Parent material - glacial till. Av. depth of topsoil - 7.5 inches. 65% Sidell silt loam, friable silty clay loam subsoil, well-drained. 11% Raub silt loam, friable topsoil, silty clay loam subsoil which becomes finer in texture with depth, imperfectly drained. 24% Chalmers silty clay loam, medium to coarse granular structured topsoil, heavy silty clay loam subsoil, very poorly drained.EROSION: 2 - 96%; 3 - 4%.LAND CAPABILITY: I - 19%; II - 71%; III - 10%.SURFACE DRAINAGE: Good, length of principal waterway - 690 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H type flume and waterstage recorder; precipitation - recording raingage.WATERSHED CONDITIONS: 1940-53 - blue grass pasture, reestablished by seeding and fertilization, following crop-rotation use.GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station

Lafayette, Ind., Watershed 25

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q				2.23 0	3.37 .09	4.47 1.04	0.10 0	2.63 0	1.04 0	4.58 .32	2.91 0	1.95 0	23.28 1.45
1941 P Q	0.84 0	0.33 0	1.28 0	2.53 0	2.48 0	3.78 0	1.13 0	1.71 0	1.64 0	6.30 0	2.75 0	.97 0	25.74 0
1942 P Q	1.12 0	3.29 0	2.86 .06	2.56 .41	3.00 0	3.77 .01	7.88 .80	3.52 T	2.61 0	1.11 0	3.76 T	.97 0	36.45 1.28
1943 P Q	.70 0	.94 0	2.16 0	2.27 0	11.42 4.64	3.70 0	3.55 .01	1.96 0	1.54 0	1.13 0	2.49 0	.43 0	32.29 4.65
1944 P Q	.42 0	2.48 0	3.36 0	6.26 .82	5.57 .25	1.95 T	1.47 0	2.23 0	1.59 0	1.63 0	2.34 0	1.30 0	30.60 1.07
1945 P Q	.36 0	1.19 0	6.54 .01	4.17 .14	5.00 .68	8.36 .91	.88 0	4.71 .23	7.00 .27	2.31 .02	1.97 T	2.38 # .26	44.87 2.52
1946 P Q	1.56 .32	2.86 .89	2.39 # .21	1.69 0	7.36 .06	3.28 .01	1.78 0	2.32 0	1.74 0	3.29 0	2.92 0	1.98 T	33.17 1.49
1947 P Q	2.75 .05	.25 0	1.52 0	7.35 1.62	3.63 .07	4.50 1.10	2.56 T	4.06 T	4.96 .03	1.81 0	1.41 0	2.05 T	36.85 2.87
1948 P Q	1.53 .01	2.14 * .64	4.42 *1.03	4.77 3.42	3.31 .09	4.52 T	3.52 0	1.81 0	3.95 .01	2.35 0	3.11 0	2.83 .03	38.26 5.28
1949 P Q	7.11 *2.94	3.14 #1.02	2.88 .38	2.33 T	2.65 0	4.32 T	2.90 0	1.75 0	.84 0	8.18 T	1.76 0	3.87 .01	41.73 4.35
1950 P Q	8.89 *4.89	4.28 *2.03	2.66 .23	4.91 1.02	2.00 0	6.91 .37	3.39 .06	2.90 0	6.98 .02	1.63 0	4.19 .04	1.58 0	50.32 8.66
1951 P Q	1.81 .11	4.32 .61	1.69 .02	2.49 0	4.48 .03	4.43 0	4.78 .09	1.86 0	1.80 0	2.47 0	2.19 T	2.31 .04	34.63 .90
1952 P Q	2.45 .11	2.05 .72	3.15 1.56	4.76 1.47	4.03 .01	8.82 2.44	2.68 .02	2.88 0	3.68 .01	1.31 0	3.05 0	1.52 0	40.38 6.34
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	2.61 .77	2.45 .54	3.06 .32	3.96 .81	4.77 .53	4.96 .44	3.22 .09	2.73 .02	3.34 .03	2.47 T	2.65 T	1.93 .03	38.15 3.58
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

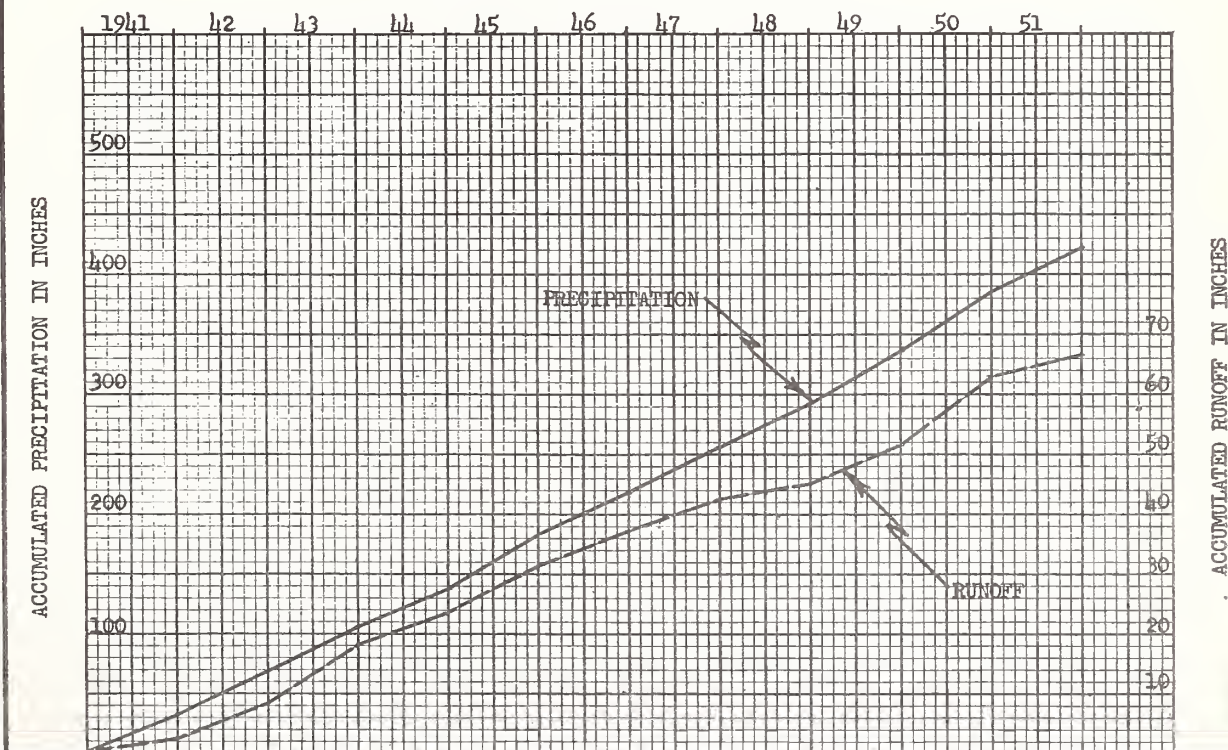
Notes: # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration years 1940-41. Quality of records : P - excellent; Q - good, except during freezing periods. Normal P based on 75 yr. records (1880-1940 at Lafayette U.S.W.B. station 8 mi. from farm; 1941-54 project records).

7-57

LAFAYETTE, INDIANA Watershed 31 (Purdue Dairy Farm)

LOCATION: Tippecanoe County, Ind.; 2 mi. W of Lafayette; Wabash River Basin.AREA: 1.64 ac.SHAPE: Roughly rectangular, about 240 ft. wide by 300 ft. long.SLOPES: 4% is in 0-2% class; 29% in 2-6%; 67% in 6+%. Aspect SW.SOILS: Parent material - glacial till. Av. depth of topsoil - 7.0 inches. 60% Miami silt loam, medium textured, moderately permeable, well-drained; 40% Crosby silt loam, medium textured, moderately slowly permeable first zone and slowly permeable second zone; poorly drained subsoil.EROSION: 1 - 2%; 2 - 95%; 3 - 3%.LAND CAPABILITY: II - 33%; III - 64%; V - 3%.SURFACE DRAINAGE: Good on Miami, imperfect on Crosby; length of principal waterway - 400 ft.CHARACTER OF FLOW: Ephemeral, continuous. Due to seepage, extended flow usually occurred during the first six months of the year.INSTRUMENTATION: Runoff - 2½ ft. type H flume and waterstage recorder; precipitation - recording raingage.WATERSHED CONDITIONS: Blue grass pasture.GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Indiana Agricultural Experiment Station

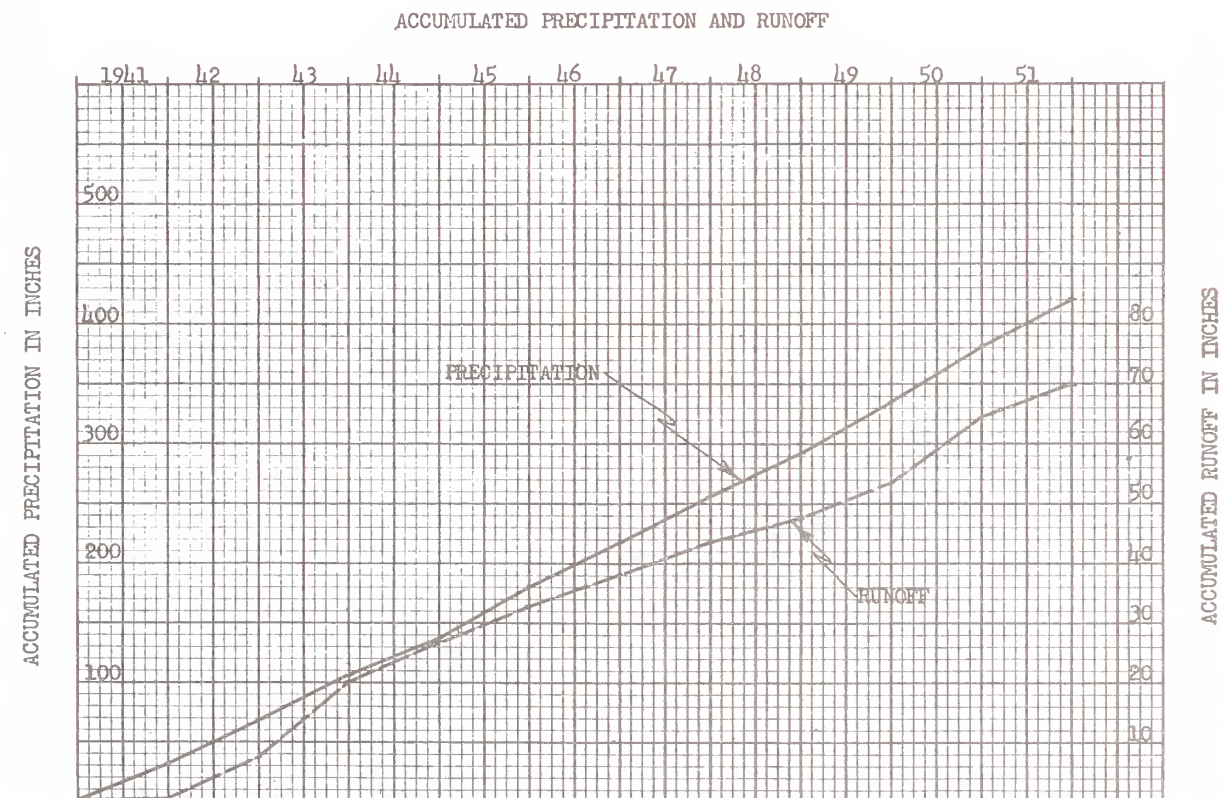


**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Lafayette, Ind., Watershed 31

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P								3.01	1.22	2.91	2.79	2.13	12.06
Q								T	.02	T	0	0	.02
1941 P	1.04	0.39	1.40	2.89	2.14	7.05	2.27	2.18	1.50	7.88	2.73	1.14	32.61
Q	0	0	0	0	0	.69	.04	0	0	1.05	.60	0	2.38
1942 P	1.20	4.28	2.77	2.69	3.12	4.43	4.27	3.45	3.16	1.53	4.58	.93	36.41
Q	0	*2.52	*1.22	#1.10	0	#.08	0	#.24	.29	0	.41	*.14	6.00
1943 P	.98	.78	2.01	2.41	12.40	5.70	3.08	2.07	2.68	1.29	2.54	.43	36.37
Q	0	.05	.25	.01	# 7.87	# 1.19	.37	#.01	.08	0	T	0	9.83
1944 P	.31	2.57	3.42	6.73	5.06	1.33	1.71	3.45	1.35	2.29	2.88	1.65	32.75
Q	0	T	.15	4.43	.92	0	0	.01	0	.20	.01	0	5.72
1945 P	.35	1.28	5.98	3.66	5.07	4.82	3.53	4.31	6.33	2.30	2.40	2.86	42.89
Q	0	0	*1.75	1.39	1.92	.07	.41	.10	.63	.16	.06	*1.02	7.51
1946 P	1.57	2.52	2.94	1.23	6.39	4.65	3.37	3.28	1.24	4.50	3.06	2.24	36.99
Q	1.28	.61	*1.79	0	.74	.23	.44	.18	T	.33	.05	.12	5.77
1947 P	2.38	.33	2.32	7.50	3.25	5.42	1.53	3.84	5.22	2.24	1.85	2.46	38.34
Q	*.45	*T	.46	2.20	.09	1.83	.02	0	.06	0	0	0	5.11
1948 P	1.21	2.36	4.47	2.09	3.84	4.24	3.05	1.90	2.98	1.92	3.25	3.52	34.83
Q	.41	.11	1.53	.35	.37	0	T	.01	0	0	0	.17	2.95
1949 P	6.77	3.11	3.23	2.23	3.58	4.79	4.67	.93	1.24	7.68	1.97	4.30	44.50
Q	2.04	.96	*.75	0	.04	.18	.05	0	0	.54	.04	*1.69	6.29
1950 P	8.21	3.56	3.35	4.38	2.09	6.23	3.41	2.98	4.43	1.69	3.33	2.01	46.17
Q	6.86	.93	1.06	1.27	.08	.56	.15	.04	.40	T	.06	.02	11.43
1951 P	1.79	4.14	3.04	2.94	3.82	4.15	5.48	2.08	1.86	3.44	2.86	3.49	39.09
Q	.25	1.56	.14	#.17	.06	.01	.99	0	0	0	.16	.16	3.80
P													
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** Av. P	2.35	2.30	3.17	3.57	4.61	4.80	3.31	2.77	2.91	3.34	2.86	2.28	38.27
** Av. Q	1.03	.61	.86	.99	1.10	.44	.22	.05	.13	.21	.13	.30	6.07
Normal P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

**Notes:** # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration year 1940. Quality of records: P - excellent; Q - good except during freezing periods which is fair. Normal P based on 75 yr. record (1880-1940) Lafayette U. S. W. B. station 8 miles from farm; 1941-54, project records.

7-57

LAFAYETTE, INDIANA Watershed 32 (Purdue Dairy Farm)LOCATION: Tippecanoe County, Ind.; 2 mi. W. of Lafayette; Wabash River BasinAREA: 1.83 ac.SHAPE: Very roughly rectangular, about 185 ft. wide by 430 ft. long.SLOPES: 5% is in 0-2% class; 57% in 2-6%; 38% in 6+%. Aspect S.SOILS: Parent material - glacial till. Av. depth of topsoil - 10.0 inches. 75% Miami silt loam, medium textured, moderately permeable, well-drained; 25% Crosby silt loam, medium textured, moderately slowly permeable first zone and slowly permeable second zone; poorly drained subsoil.EROSION: 1 - 8%; 2 - 92%.LAND CAPABILITY: II - 60%; III - 40%.SURFACE DRAINAGE: Good on Miami, imperfect on Crosby; length of principal waterway - 540 ft.CHARACTER OF FLOW: Ephemeral, continuous. Due to seepage, extended flow usually occurred during the first six months of the year.INSTRUMENTATION: Runoff - 2½ ft. type H flume and waterstage recorder; precipitation - recording rain gauge.WATERSHED CONDITIONS: Blue grass pasture.GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.

## Lafayette, Ind., Watershed 32

Notes: # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration year 1940. Quality of records: P - excellent; Q - good except during freezing periods which is fair. Normal P based on 75 yr. record (1880-1940) Lafayette U. S. W. B. station 8 miles from farm; 1941-54, project records.



LOCATION: Tippecanoe County, Ind.; 2 mi. W. of Lafayette; Wabash River Basin.

AREA: 3.44 ac.

SHAPE: Roughly fan-shaped, about 300 ft. wide by 500 ft. long.

SLOPES: 41% is in 0-2% class; 41% in 2-6%; 18% in 6+%. Aspect S.

SOILS: Parent material - glacial till. Av. depth of topsoil 9.0 inches. 62% Crosby silt loam, medium textured, moderately slowly permeable first zone and slowly permeable second zone, poorly drained subsoil; 25% Miami silt loam, medium textured, moderately permeable, well-drained; 7% silt loam intermediate between Crosby and Miami; 3% Brookston silty clay loam; 3% Bethel silt loam.

EROSION: 1 - 15%; 2 - 85%.

LAND CAPABILITY: II - 80%; III - 20%.

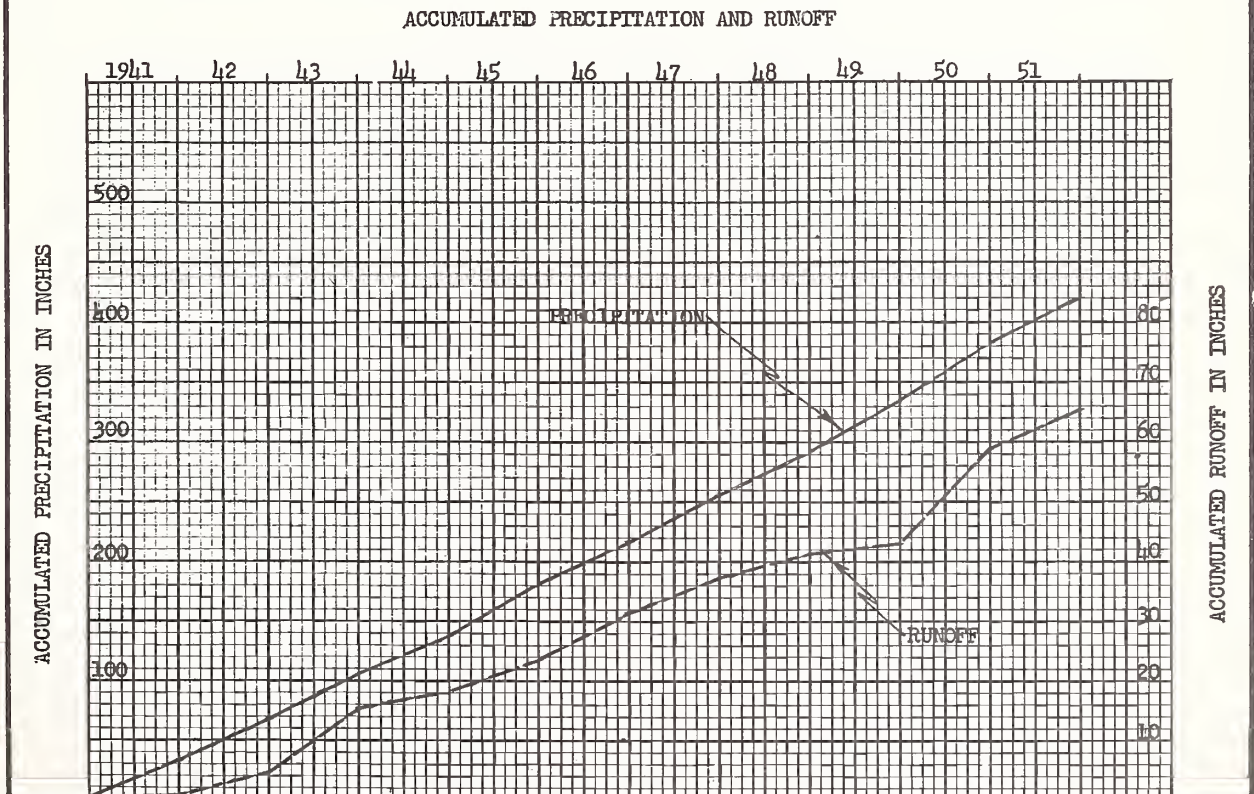
SURFACE DRAINAGE: Imperfect on Crosby, good on Miami; length of principal waterway - 660 ft.

CHARACTER OF FLOW: Ephemeral, continuous. Due to seepage, extended flow usually occurred during the first six months of the year.

INSTRUMENTATION: Runoff - 3 ft. type H flume and waterstage recorder; precipitation - recording raingage.

WATERSHED CONDITIONS: Woodland, pastured.

GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.



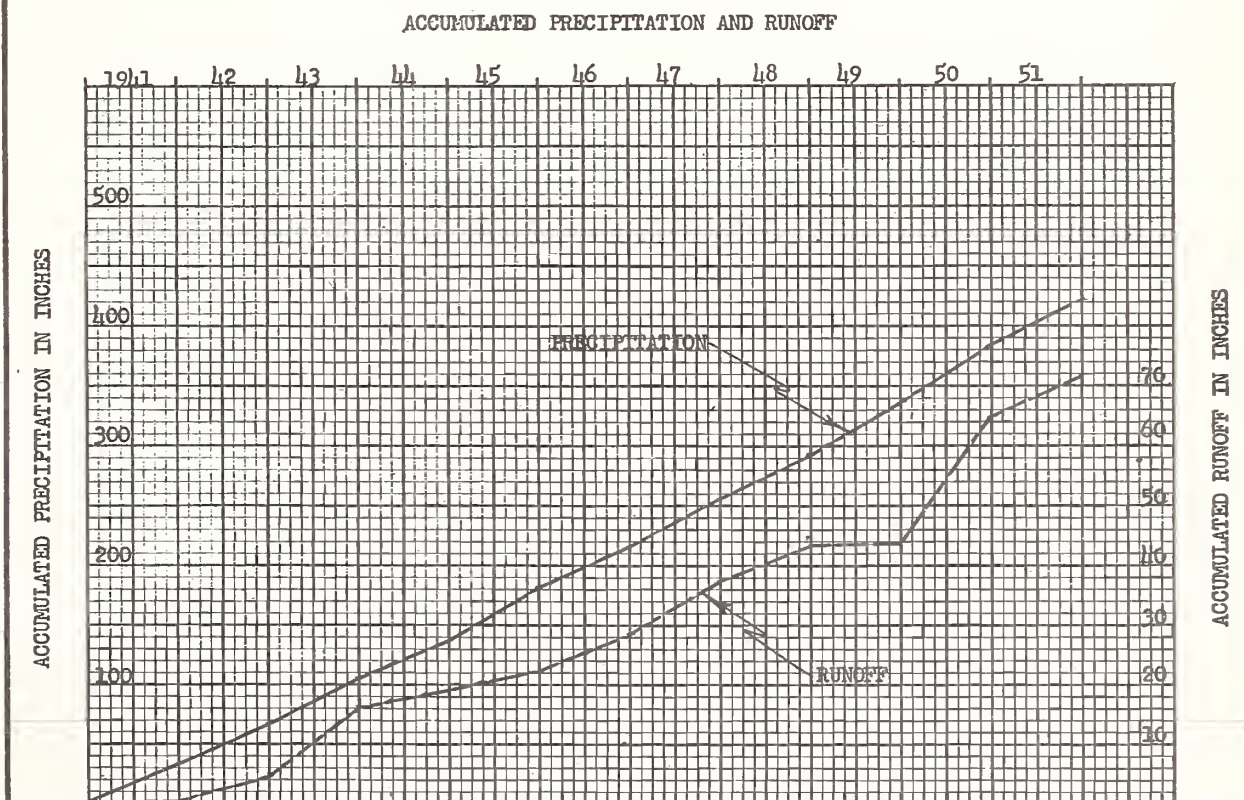
## Lafayette, Ind., Watershed 33

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940	P Q								3.01 T	1.22 .01	2.91 T	2.79 T	2.13 0	12.06 .01
1941	P Q	1.04 0	0.39 0	1.40 0	2.89 0	2.14 0	7.05 .51	2.27 .01	2.18 0	1.50 0	7.88 .05	2.73 .04	1.14 0	32.61 .61
1942	P Q	1.20 0	4.28 *1.48	2.77 *.67	2.69 #1.26	3.12 .39	4.43 .16	4.27 .03	3.45 .02	3.16 .02	1.53 0	4.58 .03	.93 0	36.41 4.06
1943	P Q	.98 0	.78 *.10	2.01 .14	2.41 .75	12.40 8.53	5.70 *1.25	3.08 .06	2.07 T	2.68 .01	1.29 0	2.54 T	.43 0	36.37 10.84
1944	P Q	.31 .04	2.57 0	3.42 *.07	6.73 1.68	5.06 #1.02	1.33 0	1.71 0	3.45 T	1.35 T	2.29 .02	2.88 T	1.65 0	32.75 2.83
1945	P Q	.35 0	1.28 0	5.98 .23	3.66 1.61	5.07 #2.95	4.82 .12	3.53 .08	4.31 .05	6.33 .25	2.30 .04	2.40 .01	2.86 #.05	42.89 5.39
1946	P Q	1.57 .26	2.52 *1.21	2.94 2.74	1.23 .45	6.39 2.73	4.65 .21	3.37 .11	3.28 .02	1.24 0	4.50 .03	3.06 .01	2.24 T	36.99 7.77
1947	P Q	2.38 .05	.33 0	2.32 .12	7.50 3.33	3.25 .48	5.42 1.89	1.53 0	3.84 0	5.22 .03	2.24 0	1.85 0	2.46 0	38.34 5.90
1948	P Q	1.21 0	2.36 .24	4.47 .76	2.09 1.21	3.84 #1.54	4.24 0	3.05 .01	1.90 T	2.98 0	1.92 0	3.25 0	3.52 0	34.83 3.76
1949	P Q	6.77 *..40	3.11 0	3.23 0	2.23 0	3.58 .37	4.79 .15	4.67 #.02	.93 0	1.24 0	7.68 .05	1.97 T	4.30 #.79	44.50 1.78
1950	P Q	8.21 7.56	3.56 1.63	3.35 *2.11	4.88 3.15	2.09 .41	6.23 .83	3.41 .05	2.98 T	4.43 .05	1.69 0	3.33 T	2.01 .02	46.17 15.81
1951	P Q	1.79 *.12	4.14 *1.51	3.04 1.19	2.94 1.80	3.62 .94	4.15 .03	5.48 .85	2.08 0	1.86 0	3.44 .01	2.86 .16	3.49 .22	39.09 6.83
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
**Av. **Av. Q	P Q	2.35 .77	2.30 .56	3.17 .73	3.57 1.38	4.61 1.76	4.80 .47	3.31 .11	2.77 .01	2.91 .03	3.34 .02	2.86 .02	2.28 .10	38.27 5.96
Normal	P	2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

Notes: # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration year 1940. Quality of records: P - excellent; Q - good except during freezing periods which is fair. Normal P based on 75 yr. record (1880-1940) Lafayette U. S. W. B. station 8 miles from farm; 1941-54, project records.



7-57

LAFAYETTE, INDIANA Watershed 34 (Purdue Dairy Farm)LOCATION: Tippecanoe County, Ind.; 2 mi. W. of Lafayette; Wabash River Basin.AREA: 3.17 ac.SHAPE: Roughly rectangular, about 250 ft. wide by 550 ft. long.SLOPES: 20% is in 0-2% class; 60% in 2-6%; 20% in 6+%. Aspect S-SW.SOILS: Parent material - glacial till. Average depth of topsoil - 10.0 inches. 71% Crosby silt loam, medium textured, moderately slowly permeable first zone and slowly permeable second zone, poorly drained subsoil; 17% Miami silt loam, medium textured, moderately permeable, well-drained; 11% silt loam intermediate between Crosby and Miami; 1% Bethel silt loam.EROSION: 1 - 45%; 2 - 55%.LAND CAPABILITY: II - 80%; III - 20%.SURFACE DRAINAGE: Imperfect; length of principal waterway - 600 ft.CHARACTER OF FLOW: Ephemeral, continuous. Due to seepage, extended flow usually occurred during the first six months of the year.INSTRUMENTATION: Runoff - 2½ ft. type H flume and waterstage recorder; precipitation - recording raingage.WATERSHED CONDITIONS: Woodland, protected (not grazed).GENERALLY REPRESENTS: Central Illinois - Northwestern Indiana Heavy Till Area.

Cooperative Research Project of USDA and Indiana Agricultural Experiment Station



## Lafayette, Ind., Watershed 34

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940	P Q								3.01 T	1.22 .02 T	2.91 T	2.79 T	2.13 0	12.06 .02
1941	P Q	1.04 0	0.39 0	1.40 0	2.89 0	2.14 0	7.05 .05	2.27 T	2.18 0	1.50 0	7.88 T	2.73 T	1.14 0	32.61 .05
1942	P Q	1.20 0	4.28 1.02	2.77 .78	2.69 2.01	3.12 # .74	4.43 .06	4.27 0	3.45 T	3.16 T	1.53 0	4.58 0	.93 0	36.41 4.61
1943	P Q	.98 0	.78 0	2.01 .94	2.41 .29	12.40 # 9.66	5.70 .54	3.08 # .02	2.07 0	2.68 T	1.29 0	2.54 0	.43 0	36.37 11.45
1944	P Q	.31 0	2.57 0	3.42 0	6.73 1.80	5.06 1.36	1.33 0	1.71 0	3.45 .01	1.35 0	2.29 T	2.88 0	1.65 0	32.75 3.17
1945	P Q	.35 0	1.28 0	5.98 .14	3.66 .41	5.07 2.31	4.82 T	3.53 .01	4.31 T	6.33 .01	2.30 0	2.40 0	2.86 .15	42.89 3.03
1946	P Q	1.57 .49	2.52 *1.34	2.94 1.88	1.23 0	6.39 2.66	4.65 .08	3.37 .01	3.28 T	1.24 0	4.50 T	3.06 0	2.24 0	36.99 6.46
1947	P Q	2.38 T	.33 0	2.32 .09	7.50 4.55	3.25 1.21	5.42 3.01	1.53 0	3.84 T	5.22 T	2.24 0	1.85 0	2.46 0	38.34 8.86
1948	P Q	1.21 0	2.36 0	4.47 2.03	2.09 1.51	3.84 2.28	4.24 T	3.05 T	1.90 T	2.98 0	1.92 0	3.25 0	3.52 0	34.83 5.82
1949	P Q	6.77 .40	3.11 0	3.23 0	2.23 0	3.58 .10	4.79 .01	4.67 T	.93 0	1.24 0	7.68 0	1.97 0	4.30 0	44.50 .51
1950	P Q	8.21 9.61	3.56 2.87	3.35 3.48	4.88 4.22	2.09 # .20	6.23 # .54	3.41 # T	2.98 0	4.43 # T	1.69 0	3.33 * T	2.01 * .02	46.17 20.94
1951	P Q	1.79 0	4.14 *1.49	3.04 *1.84	2.94 # 2.02	3.82 # 1.21	4.15 0	5.48 # .45	2.08 0	1.86 0	3.44 0	2.86 0	3.49 0	39.09 7.01
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
**Av. P **Av. C		2.35 .95	2.30 .61	3.17 1.02	3.57 1.53	4.61 1.98	4.80 .39	3.31 .04	2.77 T	2.91 T	3.34 T	2.86 T	2.28 .02	38.27 6.54
Normal P		2.50	2.28	3.07	3.46	4.14	4.07	3.56	3.25	3.23	2.71	2.78	2.43	37.48

Notes: # Partially estimated. \* Substantial portion of record questionable because of ice in flume or well. \*\* Does not include calibration year 1940. Quality of records: P - excellent; Q - good except during freezing periods which is fair. Normal P based on 75 yr. record (1880-1940) Lafayette U. S. W. B. station 8 miles from farm; 1941-54, project records.

6-56

CLARINDA, IOWA

Watershed V

LOCATION: Page Co., Iowa; 9 mi. W. of Clarinda; Tarkio River, Missouri River Basin.

AREA: 3.25 ac.

SHAPE: Roughly rectangular, about 300 ft. wide by 450 ft. long.

SLOPES: 20% is in 5-9% class; 80% in 9-13%. Aspect NE.

SOILS: Loessial; topsoil - medium textured, granular crumb structure, moderately deep (8-14 in.); subsoil - moderately permeable; internal drainage - medium. Marshall silt loam - 90%; Wabash silt loam - 10%.

EROSION: 2 - 20%; 3 - 70%; 4 - 10%.

LAND CAPABILITY: II - 10%; III - 90%.

SURFACE DRAINAGE: Good; principal waterway - 500 ft.; overland flow to N boundary where it is diverted by earth dike to the measuring station.

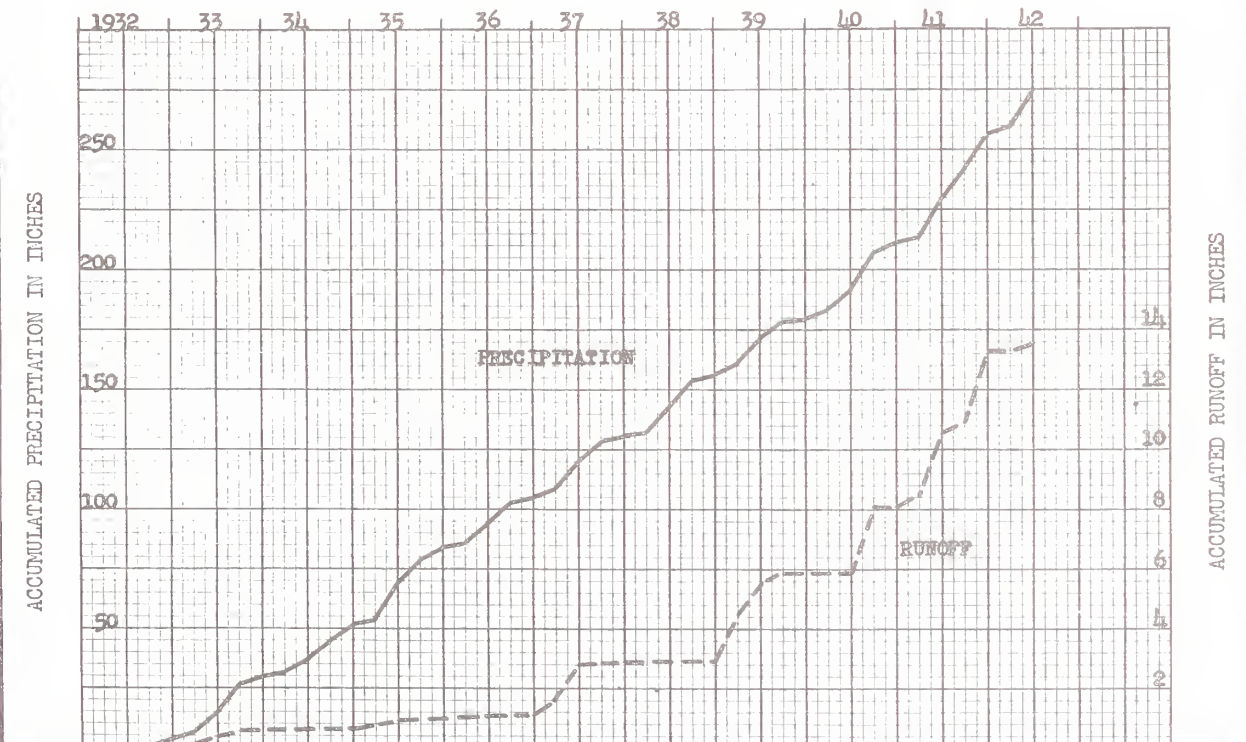
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. Parshall flume, 40" depth, pressure recorder Oct. 1932-41, stage recorder Aug. 1938-41; precipitation - recording gage.

WATERSHED CONDITIONS: Prior to 1932 - badly run down, under cultivation about 75 yrs.; Sept. 1931 - established as good rotation unterraced plot, corn, corn, oats, seeded to clover, clover; clover - 1934, '38, '42; oats - 1933, '37, '41; corn - 1932, '35, '36, '39, '40. Crop yields good except for 1934 and 1936 when drouth caused nearly complete failure.

GENERALLY REPRESENTS: Cultivated unterraced areas of the Missouri Valley Deep Loess Area having medium internal drainage, good surface drainage, and moderate to severe erosion in SW Iowa, E Nebraska, and NW Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Iowa Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Clarinda, Iowa, Watershed V**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932 P										1.25	1.11	1.07	3.43
Q										0	0	0	0
1933 P	0.32	0.07	2.99	0.85	3.09	4.27	2.41	5.88	4.29	.88	.39	1.09	26.53
Q	0	0	.04	0	.26	.10	0	.13	.05	0	0	0	.58
1934 P	.42	.24	.08	.75	2.55	2.54	1.28	2.32	4.59	2.77	3.71	.15	21.40
Q	.02	0	0	0	.01	0	0	0	0	.01	0	0	.04
1935 P	.85	.59	.27	.61	7.74	7.02	1.50	2.93	5.02	3.06	2.35	.28	32.22
Q	.10	.05	0	0	.04	.11	0	0	.01	.01	0	0	.32
1936 P	1.33	.15	.19	2.12	3.80	2.41	.88	1.81	6.06	1.13	.37	1.63	21.88
Q	0	.02	.07	0	.05	.01	0	0	0	0	0	0	.15
1937 P	1.76	.23	1.47	3.39	4.33	3.37	5.98	1.80	.85	1.33	.58	.32	25.41
Q	0	.20	.33	0	.75	*.44	.05	0	0	0	0	0	1.77
1938 P	.15	.49	.89	3.08	5.38	2.14	1.89	6.04	2.98	.29	2.33	.36	26.02
Q	0	0	0	0	.03	0	0	.01	T	0	0	0	.04
1939 P	.57	.67	2.43	1.63	1.06	8.67	3.93	1.94	.37	1.27	.50	.35	23.39
Q	0	.14	*1.45	0	0	1.07	.29	0	0	0	0	0	2.95
1940 P	.48	.80	1.52	3.83	1.30	2.96	7.67	6.39	.81	1.45	2.37	1.11	30.69
Q	0	0	0	0	0	0	1.59	.62	0	0	0	0	2.21
1941 P	1.06	.50	.74	3.58	3.16	9.73	.22	1.51	10.53	11.03	.63	2.15	44.84
Q	0	.21	.01	.37	0	1.89	0	0	.31	2.26	0	.14	5.19
1942 P	.37	.95	2.26	2.81	5.77	5.68							17.84
Q	0	0	0	0	*.04	.25							.29
P													
Q													
P													
Q													
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Q													
** Av. P	.77	.42	1.18	2.20	3.60	4.79	2.86	3.40	3.94	2.58	1.47	.83	28.04
** Av. Q	.01	.07	.21	.04	.13	.40	.21	.08	.04	.25	0	.02	1.46
Normal P	.91	1.07	1.75	2.72	4.21	5.21	3.71	3.77	3.61	2.51	1.49	1.00	31.96

Notes: \* Partially estimated. \*\* Does not include part year amounts for 1932 and 1942. Normal P based on 84 yr. record (1872-1955) at Clarinda, Iowa. Months of Jan., Feb., Mar. and Dec. include snow and snow melt. Quality of records: P - excellent; Q - fair.



LOCATION: Page Co., Iowa; 9 mi. W. of Clarinda; Tarkio River, Missouri River Basin.

AREA: 1.97 ac.

SHAPE: Roughly rectangular, about 175 ft. wide by 480 ft. long.

SLOPES: 16% is in 5-9% class; 84% in 9-13%. Aspect E-SE.

SOILS: Loessial; topsoil - medium textured, granular crumb structure, moderately deep (8-14 in.); subsoil - moderately permeable; internal drainage - medium. Marshall silt loam - 82%; Shelby silt loam - 8%; Wabash silt loam - 10%.

EROSION: 2 - 16%; 3 - 74%; 4 - 10%.

LAND CAPABILITY: II - 10%; III - 90%.

SURFACE DRAINAGE: Good; principal waterway - 500 ft.; overland flow to S boundary where it is diverted by an earth dike to the measuring station.

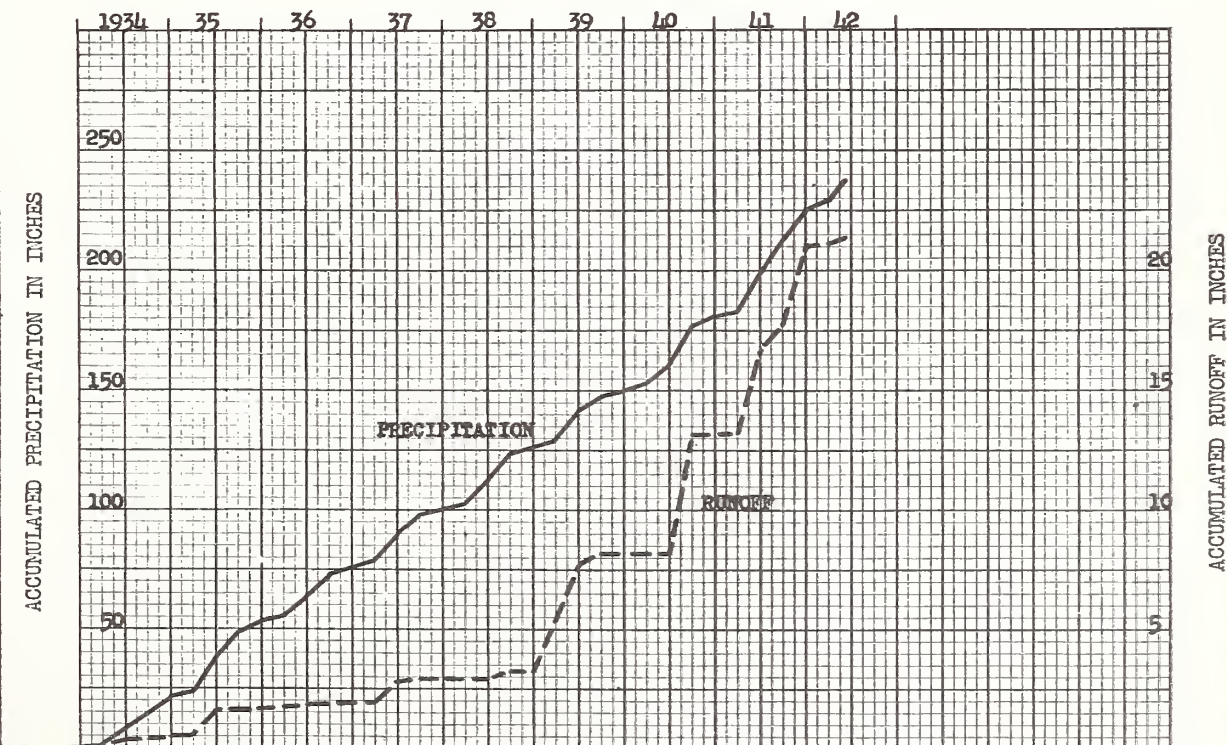
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. Parshall flume, 28" depth, pressure recorder April 1934-41, stage recorder Aug. 1938-41; precipitation - recording gage.

WATERSHED CONDITIONS: Prior to 1932 - badly run down, under cultivation about 75 yrs.; Sept. 1931 - established as poor rotation unterraced plot, corn, corn, corn, oats; Apr. 1934 - hydrologic measurements begun, oats - 1934, '38, '42; corn - 1935, '36, '37, '39, '40, '41. Crop yields good except for 1936 when drouth caused almost complete failure.

GENERALLY REPRESENTS: Cultivated unterraced areas of the Missouri Valley Deep Loess Area having medium internal drainage, good surface drainage, and moderate to severe erosion in SW Iowa, E Nebraska, and NW Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Iowa Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Clarinda, Iowa, Watershed W**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P Q	0.42 0	0.24 0	0.08 0	0.75 0	2.55 .41	2.54 0	1.28 0	2.32 0	4.59 0	2.77 .09	3.71 0	0.15 0	21.40 .50
1935 P Q	.85 .01	.59 0	.27 0	.61 0	7.74 .31	7.02 .78	1.50 .01	2.93 0	5.02 0	3.06 .02	2.35 0	.28 0	32.22 1.13
1936 P Q	1.33 0	.15 .05	.19 .03	2.12 .09	3.80 0	2.41 0	.88 0	1.81 0	6.06 0	1.13 0	.37 0	1.63 .06	21.88 .23
1937 P Q	1.62 0	.21 .06	1.36 0	3.29 0	4.25 .38	3.30 .47	6.10 .14	1.77 0	.83 0	1.13 0	.60 0	.31 0	24.77 1.05
1938 P Q	.15 0	.48 0	.83 0	2.90 0	5.51 .03	2.14 0	1.97 0	6.14 .25	2.96 .05	.28 0	2.37 0	.32 0	26.05 .33
1939 P Q	.44 0	.54 0	2.34 *2.21	1.64 0	1.06 0	8.86 2.24	4.02 .50	2.09 0	.43 0	1.33 0	.51 0	.49 0	23.75 4.95
1940 P Q	.40 0	.59 0	1.47 0	3.76 0	1.42 0	2.87 0	7.69 2.86	6.73 2.12	.91 0	1.50 0	2.51 0	1.02 0	30.87 4.98
1941 P Q	1.03 0	.47 * .01	.64 0	3.53 .43	3.19 0	9.71 3.07	.21 0	1.59 0	10.31 1.06	10.88 3.14	.60 0	2.02 .15	44.18 7.86
1942 P Q	.37 0	.95 0	2.26 0	2.81 0	5.77 .44								12.16 .44
P Q													
P Q													
P Q													
P Q													
P Q													
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** Av. P ** Av. Q	.78 T	.41 .01	.90 .28	2.32 .07	3.69 .14	4.86 .82	2.96 .44	3.17 .30	3.89 .14	2.76 .41	1.63 0	.78 .03	28.15 2.64
Normal P	.91	1.07	1.75	2.72	4.21	5.21	3.71	3.77	3.61	2.51	1.49	1.00	31.96

**Notes:** \* Partially estimated. \*\* Does not include part year amounts for 1942. Normal P based on 84 yr. record (1872-1955) at Clarinda, Iowa. Months of Jan., Feb., Mar. and Dec. include snow and snow melt. Quality of records: P - excellent; Q - fair.



LOCATION: Page Co., Iowa; 9 mi. W. of Clarinda; Tarkio River, Missouri River Basin.

AREA: 1.97 ac.

SHAPE: Roughly rectangular; about 200 ft. wide by 450 ft. long.

SLOPES: 10% is in 5-9% class; 90% in 9-13%. Aspect E.

SOILS: Loessial; topsoil - medium textured, granular crumb structure, moderately deep (8-14 in.); subsoil - moderately permeable; internal drainage - medium. Marshall silt loam - 74%; Shelby silt loam - 17%; Wabash silt loam - 9%.

EROSION: 2 - 12%; 3 - 79%; 4 - 9%.

LAND CAPABILITY: II - 9%; III - 91%.

SURFACE DRAINAGE: Good; principal waterway - 500 ft.; terraced area with 6 terraces uniformly graded 3" per 100 ft., 127 to 350 ft. long, average vertical interval 5 ft.; terrace outlet along SW boundary.

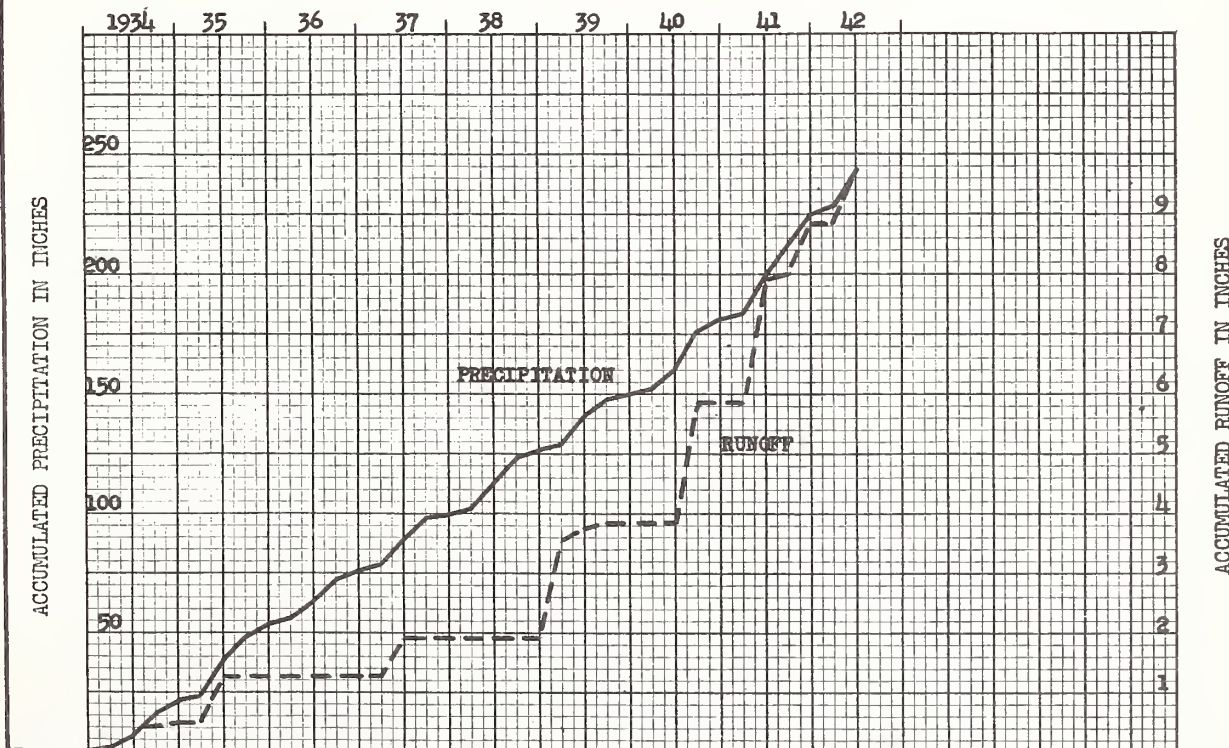
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. Parshall flume, 22" depth, pressure recorder April 1934-41, stage record r Oct. 1938-41; precipitation - recording gage.

WATERSHED CONDITIONS: Prior to 1932 - badly run down, under cultivation about 75 yrs.; Sept. 1931 - terraces constructed; Apr. 1934 - hydrologic measurements started; poor rotation terraced area; 4 yr. rotation, corn, corn, corn, oats; oats - 1934, '38, '42; corn - 1935, '36, '37, '39, '40, '41. Crop yields good except for 1936 when drouth reduced the corn yield to about one third of normal.

GENERALLY REPRESENTS: Cultivated terraced areas of the Missouri Valley Deep Loess Area having medium internal drainage, good surface drainage, and moderate to severe erosion in SW Iowa, E Nebraska, and NW Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Iowa Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Clarinda, Iowa, Watershed X

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934	P Q	0.42 0	0.24 0	0.08 0	0.75 0	2.55 .38	2.54 0	1.28 0	2.32 0	4.59 .04	2.77 .07	3.71 0	0.15 0	21.40 .49
1935	P Q	.85 .01	.59 0	.27 0	.61 0	7.74 .27	7.02 .46	1.50 0	2.93 0	5.02 0	3.06 .01	2.35 T	.28 0	32.22 .75
1936	P Q	1.33 0	.15 0	.19 0	2.12 0	3.80 T	2.41 0	.88 0	1.81 0	6.06 0	1.13 0	.37 0	1.63 0	21.88 T
1937	P Q	1.59 0	.21 .01	1.33 0	3.26 0	4.21 *.31	3.27 .35	6.10 .01	1.76 0	.83 0	1.08 0	.60 0	.31 0	24.55 .68
1938	P Q	.15 0	.48 0	.82 0	2.84 0	5.54 0	2.13 0	1.98 0	6.19 0	2.99 0	.28 0	2.37 0	.31 0	26.08 0
1939	P Q	.41 0	.50 0	2.33 *1.63	1.64 0	1.06 0	8.87 .22	4.03 .06	2.13 0	.43 0	1.35 0	.54 0	.50 0	23.79 1.91
1940	P Q	.41 0	.58 0	1.47 0	3.76 0	1.46 0	2.87 0	7.70 1.34	6.85 .67	.93 0	1.53 0	2.56 0	1.03 0	31.15 2.01
1941	P Q	1.04 0	.47 0	.62 0	3.51 .02	3.19 0	9.71 2.04	.21 0	1.61 0	10.27 .09	10.84 .76	.60 0	2.02 .08	44.09 2.99
1942	P Q	.37 0	.95 0	2.26 0	2.81 0	5.77 .25	5.68 .74							17.84 .99
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
** Av. P ** Av. Q	P T	.78 T	.40 T	.89 .20	2.31 T	3.69 .12	4.85 .38	2.96 .18	3.20 .08	3.89 .02	2.76 .10	1.64 T	.78 .01	28.15 1.09
Normal	P	.91	1.07	1.75	2.72	4.21	5.21	3.71	3.77	3.61	2.51	1.49	1.00	31.96

Notes: \* Partially estimated. \*\* Does not include part year amounts for 1942. Normal P based on 84 yr. record (1872-1955) at Clarinda, Iowa. Months of Jan., Feb., Mar. and Dec. include snow and snow melt. Quality of records: P - excellent; Q - fair.

LOCATION: Page Co., Iowa; 9 mi. W. of Clarinda; Tarkio River, Missouri River Basin.

AREA: 3.25 ac.

SHAPE: Rough parallelogram, about 300 ft. wide by 450 ft. long.

SLOPES: 20% is in 5-9% class; 80% in 9-13%. Aspect S.

SOILS: Loessial; topsoil - medium textured, granular crumb structure, moderately deep (8-14 in.); subsoil - moderately permeable; internal drainage - medium. Marshall silt loam - 72%; Wabash silt loam - 28%.

EROSION: 2 - 20%; 3 - 60%; 4 - 20%.

LAND CAPABILITY: II - 28%; III - 72%.

SURFACE DRAINAGE: Good; principal waterway - 550 ft.; overland flow to natural depression along SW boundary then passes through a confined channel to the measuring station.

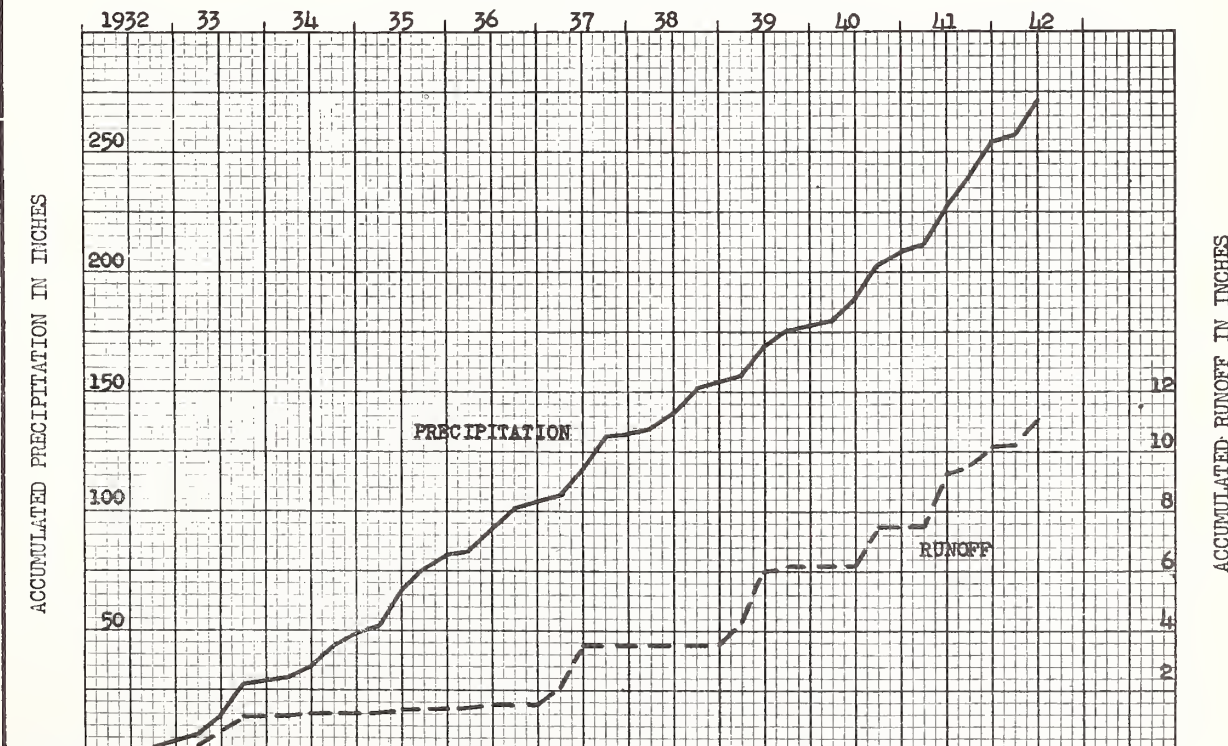
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. Marshall flume, 40" depth, pressure recorder Oct. 1932-41, stage recorder Aug. 1938-Dec. 1941; precipitation - recording gage.

WATERSHED CONDITIONS: Prior to 1932 - badly run down, under cultivation about 75 yrs.; Sept. 1931 - established as good rotation terraced plot, corn, corn, oats seeded to clover, clover; clover - 1934, '38, '42; oats - 1933, '37, '41; corn - 1932, '35, '36, '39, '40. Crop yields good except for 1936 when drouth reduced the corn yield to about one third normal.

GENERALLY REPRESENTS: Cultivated terraced areas of the Missouri Valley Deep Loess Area having medium internal drainage, good surface drainage, and moderate to severe erosion in SW Iowa, E Nebraska, and NW Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Iowa Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Clarinda, Iowa, Watershed Y

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932 P Q										1.20 0	1.09 0	1.04 0	3.33 0
1933 P Q	0.35 0	0.07 0	3.06 .08	0.85 0	3.05 .48	4.02 .03	2.33 0	5.97 .38	4.10 .12	.86 0	.38 0	1.04 0	26.08 1.09
1934 P Q	.39 *.02	.22 0	.07 0	.73 0	2.35 .09	2.25 0	1.21 0	2.41 0	4.25 0	2.86 .01	3.52 0	.12 0	20.38 .12
1935 P Q	.86 0	.52 0	.24 0	.60 0	7.63 .04	6.93 .13	1.44 T	2.93 0	5.17 .01	3.02 0	2.46 0	.29 0	32.09 .18
1936 P Q	1.62 0	.13 0	.19 0	2.10 0	3.75 .08	2.34 .02	.81 0	1.70 0	6.10 0	1.11 0	.35 0	1.66 0	21.86 .10
1937 P Q	1.59 0	.21 .29	1.33 .23	3.26 0	4.21 1.08	3.27 .37	6.10 .05	1.76 0	.83 0	1.08 0	.60 0	.31 0	24.55 2.02
1938 P Q	.15 0	.48 0	.82 0	2.84 0	5.54 .02	2.13 0	1.98 0	6.19 .01	2.99 0	.28 0	2.37 0	.31 0	26.08 .03
1939 P Q	.41 0	.50 .77	2.33 0	1.64 0	1.06 0	8.87 1.72	4.03 .12	2.13 0	.43 0	1.35 0	.54 0	.50 0	23.79 2.61
1940 P Q	.41 0	.58 0	1.47 0	3.76 0	1.46 0	2.87 0	7.70 .92	6.85 .43	.93 0	1.53 0	2.56 0	1.03 0	31.15 1.35
1941 P Q	1.04 0	.47 .01	.62 0	3.51 .26	3.19 .01	9.71 1.55	.21 0	1.61 0	10.27 .22	10.84 .47	.60 0	2.02 .14	44.09 2.66
1942 P Q  P Q  P Q  P Q  P Q  P Q  P Q  P Q	.37 0                 	.95 0                 	2.26 0                 	2.81 .03                 	5.77 .27                 	5.68 .63                 							17.84 .93
** Av. P ** Av. Q	.76 T	.35 .12	1.13 .03	2.14 .03	3.58 .20	4.71 .42	2.87 .12	3.51 .09	3.90 .04	2.55 .05	1.49 0	.81 .02	27.80 1.12
Normal P	.91	1.07	1.75	2.72	4.21	5.21	3.71	3.77	3.61	2.51	1.49	1.00	31.96

Notes: \* Partially estimated. \*\*Does not include part year amounts for 1932 and 1942. Normal P based on 84 yr. record (1872-1955) at Clarinda, Iowa. Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records: P - excellent; Q - fair.



LOCATION: Page Co., Iowa; 9 mi. W. of Clarinda; Tarkio River, Missouri River Basin.

AREA: 3.12 ac.

SHAPE: Roughly rectangular, about 250 ft. wide by 540 ft. long.

SLOPES: 100% is in 9-13% class. Aspect E-NE.

SOILS: Loessial; topsoil - medium textured, granular crumb structure, moderately deep (8-14 in.); subsoil - moderately permeable; internal drainage - medium. Marshall silt loam - 75%; Shelby silt loam - 9%; Wabash silt loam - 16%.

EROSION: 2 - 84%; + - 16%.

LAND CAPABILITY: II - 16%; III - 84%.

SURFACE DRAINAGE: Good; principal waterway - 450 ft.; terraced area with 5 terraces uniformly graded 3" per 100 ft., 430 to 575 ft. long, average vertical interval 5 ft.; terrace outlet along S boundary.

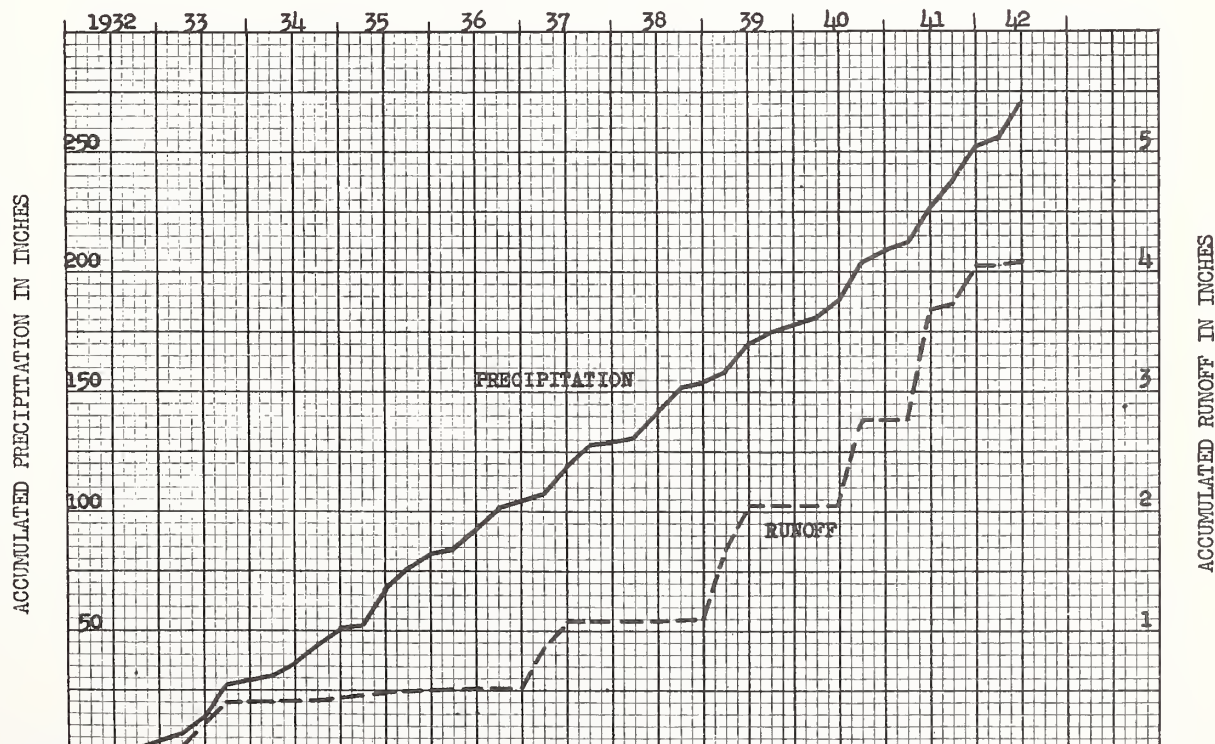
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. Parshall flume, 40" depth, pressure recorder Oct. 1932-41, stage recorder Aug. 1938-41; precipitation - recording gage.

WATERSHED CONDITIONS: Prior to 1932 - badly run down, under cultivation about 75 yrs.; Sept. 1931 - established as good rotation terraced plot, corn, corn, oats seeded to clover, clover, clover - 1934, '38, '42; oats - 1933, '37, '41; corn - 1932, '35, '36, '39, '40. Crop yields good except for 1936 when drouth caused nearly complete failure.

GENERALLY REPRESENTS: Cultivated terraced areas of the Missouri Valley Deep Loess Area having medium internal drainage, good surface drainage, and moderate to severe erosion in SW Iowa, E Nebraska and NW Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Iowa Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Clarinda, Iowa, Watershed Z

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932 P Q										1.17 0	1.13 0	1.05 0	3.35 0
1933 P Q	0.36 0	0.06 0	3.13 .02	0.90 0	3.00 .07	4.06 .11	2.29 0	6.02 .15	4.10 .05	.83 0	.38 0	1.04 0	26.17 .40
1934 P Q	.48 0	.19 0	.10 0	.70 0	2.48 .01	2.28 0	1.22 0	2.09 0	4.77 0	2.87 .01	3.57 0	.11 0	20.86 .02
1935 P Q	.84 .03	.52 .01	.26 0	.64 0	7.61 .01	6.95 .03	1.41 0	2.81 0	5.21 0	3.02 0	2.49 0	.28 0	32.04 .08
1936 P Q	1.59 0	.15 T	.19 T	2.08 0	3.66 0	2.38 .01	.78 0	1.64 0	5.95 0	1.14 0	.35 0	1.69 0	21.60 .01
1937 P Q	1.64 0	.27 .16	1.51 .19	3.42 0	4.32 .18	3.32 .05	6.10 T	1.79 0	.83 0	1.23 0	.58 0	.30 0	25.31 .58
1938 P Q	.15 0	.36 0	.78 0	2.88 0	5.22 0	1.99 0	1.77 0	5.68 .01	2.91 0	.27 0	2.28 0	.35 0	24.64 .01
1939 P Q	.52 0	.71 .10	2.55 * .48	1.62 0	1.16 0	8.65 .37	3.73 .01	1.94 0	.38 0	1.26 0	.45 0	.65 0	23.62 .96
1940 P Q	.53 0	.73 0	1.56 0	4.04 0	1.33 0	3.02 0	7.45 .61	6.89 .09	.93 0	1.49 0	2.49 0	1.18 0	31.64 .70
1941 P Q	1.23 0	.49 0	.78 0	3.59 .04	3.03 0	9.42 .89	.20 0	1.54 0	10.33 .03	10.39 .32	.53 0	2.00 .01	43.53 1.29
1942 P Q	.37 0	.95 0	2.26 0	2.81 0	5.77 0	5.68 .02							17.84 .02
P													
Q													
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** Av. P ** Av. Q	.82 T	.39 .03	1.21 .08	2.21 T	3.53 .03	4.67 .16	2.77 .07	3.38 .03	3.93 .01	2.50 .04	1.46 0	.84 T	27.71 .45
Normal P	.91	1.07	1.75	2.72	4.21	5.21	3.71	3.77	3.61	2.51	1.49	1.00	31.96

Notes: \* Partially estimated. \*\* Does not include part year amounts for 1932 and 1942. Normal P based on 84 yr. record (1872-1955) at Clarinda, Iowa. Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records: P - excellent; Q - fair.



LOCATION: Johnson Co., Iowa; nr. Iowa City; Ralston Creek, Iowa River, Mississippi River Basin.

AREA: 1926 ac. (3.01 Sq. mi.)

SHAPE: Roughly oblong; about 1 mi. wide by 3 mi. long.

SLOPES: 1% is in 0-2% class; 19% in 2-5%; 24% in 5-9%; 22% in 9-14%; 8% in 14-18%; 19% in 18-25%; 7% in over 25%. Aspect West.

SOILS: Loessial; topsoil-medium textured, granular structure, moderately deep (4-10"); subsoil-moderately permeable; internal drainage-good. Fayette silt loam - 78%; Chaseburg-Nodaway silt loam - 9%; Downs silt loam - 9%; Atterbarry silt loam - 2%; alluvial-colluvial - 1%; others - 1%.

EROSION: 1-26%; 2-51%; 3-21%; + 2%.

LAND CAPABILITY: II - 30%; III - 32%; IV - 7%; VI - 12%; VII - 19%.

SURFACE DRAINAGE: Good; principal waterway - 3.6 mi., area well dissected; blacktop road forms S boundary; two gravel roads .5 and 1 mi. long N and S across upper half of area; small pond below 35 ac. failed and now ineffective.

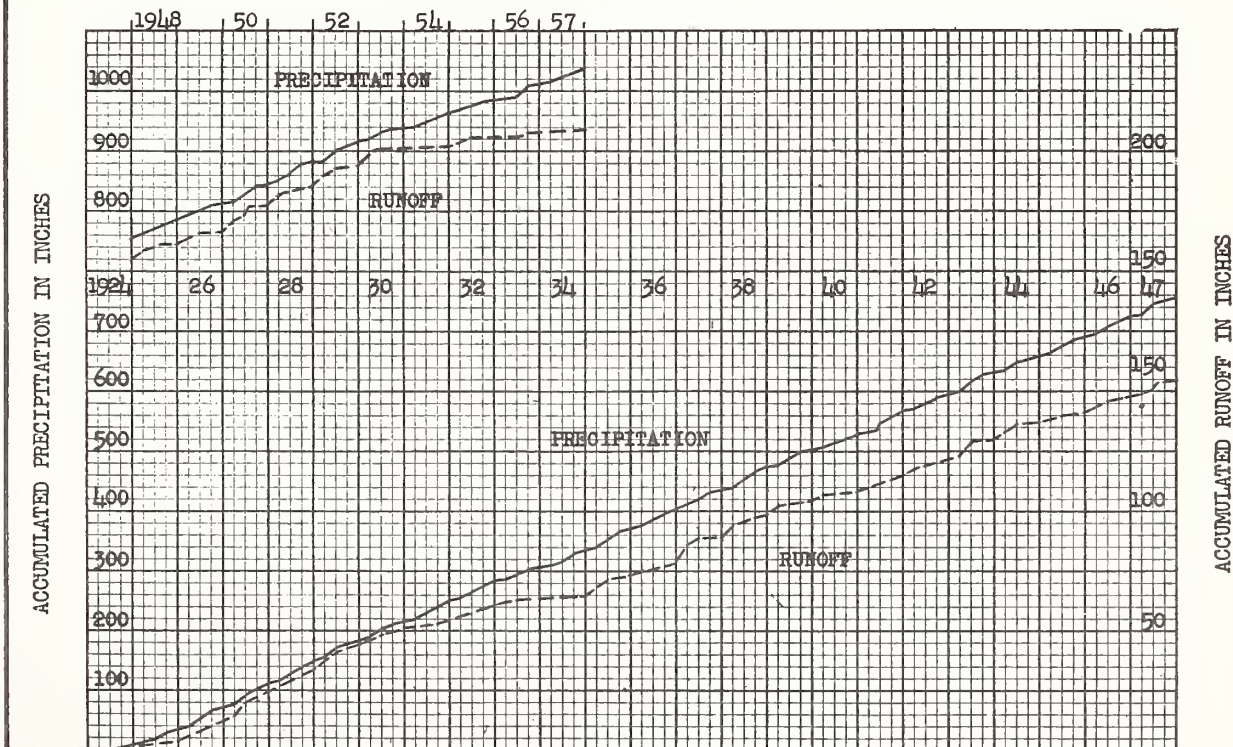
CHARACTER OF FLOW: Perennial, continuous.

INSTRUMENTATION: Runoff - artificial control, continuous water stage recorder, rating established by current meter; precipitation - 1924-'40 - 5 standard and 1 recording gage, 1941-'57 - 5 recording gages.

WATERSHED CONDITIONS: During the period of measurement no soil conserving practices have been established on this area. Approximately 40% of the area has been under cultivation, 40% in pasture, and 20% in brush timber and orchards. Since 1940 the corn and legume acreages have increased with a decrease in pasture.

GENERALLY REPRESENTS: General diversified farming without soil conserving practices of the Upper Mississippi Loess Hills having medium internal drainage, good surface drainage and moderate to severe erosion, in NW Illinois, NE Iowa, SE Minnesota and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA, US Geological Survey and State University of Iowa.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Iowa City, Iowa

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1924 P Q									2.52 .17	1.61 .09	0.91 .05	1.63 .21	
1925 P Q	0.27 .02	1.26 .75	0.98 .40	2.87 .18	0.83 .05	4.80 .21	3.27 .03	3.18 .09	5.56 .44	3.69 .14	.80 .12	1.44 .29	28.95 2.72
1926 P Q	.83 * .75	1.65 .86	.84 .25	1.76 .66	2.00 .12	5.48 * .86	3.96 .09	4.38 .29	9.71 *2.53	1.00 .56	3.24 * .99	.89 * .44	35.74 8.40
1927 P Q	.24 .17	1.32 *1.16	3.79 1.45	4.16 1.63	6.53 2.58	5.68 2.35	1.71 .14	1.73 .04	4.06 .04	7.28 *2.52	1.36 .26	1.91 .88	39.77 13.22
1928 P Q	.19 .16	1.76 * .93	2.28 * .73	2.28 .76	1.95 .27	6.80 .83	5.98 1.09	6.40 1.51	1.70 .12	5.28 .82	4.25 *1.63	1.08 .82	39.95 9.67
1929 P Q	2.25 * .19	.97 * .59	2.27 3.41	5.18 2.02	2.02 .69	5.53 1.10	2.96 .86	4.33 * .69	2.59 .06	3.63 .20	1.84 .30	.13 .18	33.70 10.29
1930 P Q	1.18 .04	1.86 1.36	.79 .40	3.07 .43	2.38 .29	7.78 1.91	2.24 .29	1.69 .01	5.17 1.32	2.41 .12	2.13 .13	1.31 .26	32.01 6.56
1931 P Q	.58 * .35	.16 .15	*1.49 .12	2.38 .58	2.31 .16	2.64 .12	3.57 .07	3.21 .02	4.62 .48	3.39 .06	5.08 1.08	2.34 .51	31.77 3.70
1932 P Q	1.15 .70	.25 .20	1.82 1.04	1.78 .44	3.41 .35	4.21 .52	4.53 .44	*8.00 *1.81	1.15 .06	3.61 .15	1.03 .15	2.07 .96	33.01 6.82
1933 P Q	.71 .22	.17 * .04	2.42 .36	1.53 .46	6.35 1.29	4.12 .27	2.63 .17	2.64 .10	2.63 T	1.52 T	.28 .01	.67 .02	25.67 2.94
1934 P Q	.73 .09	.31 T	1.03 * .04	.61 .01	1.94 0	2.70 0	5.12 * .45	3.57 .06	4.59 .01	1.51 .03	6.45 .19	.71 * .20	29.27 1.08
1935 P Q	1.21 *1.01	.94 *1.33	1.86 *1.25	1.46 .23	5.46 .40	9.05 2.29	3.02 .40	3.50 .38	3.59 .08	1.18 .02	4.08 .41	1.06 .14	36.41 7.94
1936 P Q	1.15 * .08	.78 * .71	.91 *1.23	1.63 .25	2.03 .14	5.38 .83	.26 T	3.09 T	10.31 1.21	2.53 .35	.53 .25	1.85 .59	30.45 5.64
1937 P Q	3.96 1.24	1.57 *2.71	1.31 *2.94	2.55 .94	4.80 *1.43	2.47 .27	4.15 .68	4.12 .42	2.60 .06	1.87 .01	1.21 .02	.79 .16	31.40 10.88
1938 P Q	1.69 *1.30	1.13 *1.07	3.67 .46	3.42 .50	5.49 .87	4.16 .38	5.73 *1.13	4.05 * .62	2.69 .17	2.03 .30	3.23 .57	.60 .10	37.89 7.47
1939 P Q	.81 .12	1.49 * .78	1.89 *2.75	3.00 .60	3.67 .30	3.92 .18	4.25 .46	6.33 .88	1.07 .01	2.25 .02	1.17 .03	.11 .02	29.96 6.15
1940 P Q	.79 0	1.06 * .09	1.28 *1.92	3.52 .40	1.46 .10	3.04 .07	2.81 .01	4.09 .09	1.07 .01	2.02 T	2.10 0	1.49 .02	24.73 2.71
1941 P Q	1.38 .07	.32 .49	.85 .64	2.60 .25	2.62 .04	10.12 2.14	3.96 .63	.97 .01	7.20 .56	7.64 1.97	.59 .58	1.30 * .44	39.55 7.82
1942 P Q	.42 * .72	.97 .35	1.77 .75	.45 .21	2.71 .15	5.39 .58	3.15 .22	2.43 .02	5.29 *1.22	1.48 .02	3.18 .29	2.15 .74	29.39 5.27
1943 P Q	.67 * .22	.77 *1.24	1.85 1.14	5.10 1.39	4.70 1.67	5.85 2.27	3.32 .22	5.21 .41	2.78 .33	1.64 .08	.88 .12	.60 .06	33.37 9.15
Av. P Av. Q													
Normal P													

**Notes:** \* Partially estimated. Months of Jan., Feb., Mar., and Dec. include snow and snow melt.  
 Quality of records: P - good; Q - good except during periods of ice effect which are fair.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1944 P	1.79	1.15	2.70	4.54	5.20	3.58	1.40	3.87	.98	1.65	1.99	1.47	30.32
Q	.60	.76	1.33	1.80	1.83	.64	.03	.04	.01	.06	.07	* .05	7.27
1945 P	.32	1.07	2.50	2.69	5.82	3.97	1.68	1.66	6.25	.32	1.90	1.49	29.67
Q	* .05	* .62	.57	.37	.98	.75	.21	.03	.22	.05	.13	.12	4.10
1946 P	2.22	.33	2.92	1.37	3.54	6.57	1.56	6.32	4.42	2.50	1.78	.58	34.11
Q	*2.24	* .20	*1.12	.19	.22	.98	.05	.80	.33	.17	.26	.09	6.65
1947 P	1.52	.25	1.80	5.01	3.74	7.42	2.16	1.20	2.62	2.70	1.26	1.85	31.53
Q	* .22	* .43	.51	1.87	.81	2.22	.76	.03	T	.01	.06	.10	7.02
1948 P	.88	2.22	2.71	2.25	2.62	3.75	6.22	.48	2.24	2.05	1.75	2.17	29.34
Q	.02	*1.68	*1.92	.21	.49	.16	1.02	.01	.02	.02	.04	.12	5.71
1949 P	2.62	1.23	2.64	.96	2.82	5.92	1.36	3.21	3.61	1.48	.84	1.68	28.39
Q	*1.04	*1.37	*1.50	.53	.23	.59	.02	.01	.18	.02	.02	.20	5.71
1950 P	2.46	.99	.90	4.15	3.88	5.49	8.28	2.03	1.40	.16	1.19	1.02	31.95
Q	.90	*1.83	2.33	.49	.79	.86	2.36	.23	.05	.01	.06	.05	9.96
1951 P	.70	3.03	3.80	2.93	5.26	4.72	4.07	3.37	2.23	3.99	2.29	.68	37.07
Q	.39	*3.03	1.20	1.26	.92	.77	.84	.12	.06	.23	.39	.21	9.42
1952 P	1.21	.46	3.22	2.15	4.24	5.82	2.93	2.85	.94	0	5.55	2.01	31.38
Q	* .79	.72	2.75	.86	1.09	.89	.18	.14	.02	.01	.81	.40	8.66
1953 P	.40	2.92	3.41	2.85	2.30	3.49	2.58	.73	.76	.35	.48	1.62	21.89
Q	* .23	*2.63	1.31	.88	1.04	.29	.15	.01	0	0	T	.01	6.55
1954 P	.31	.75	1.72	4.04	2.33	2.49	2.18	5.12	2.07	4.65	.38	1.38	27.42
Q	0	* .04	.07	.20	.13	.07	.02	.19	.03	.28	.01	.01	1.05
1955 P	1.29	1.30	.95	4.20	3.13	2.10	2.31	2.28	2.87	1.26	.13	.43	22.25
Q	.18	*1.93	* .21	.74	.26	.02	.02	.02	0	0	0	0	3.38
1956 P	.30	.82	.51	2.10	2.26	1.64	7.99	6.95	.87	.77	1.34	.74	26.29
Q	0	* .22	T	T	.02	0	1.54	1.41	.02	0	.01	0	3.22
1957 P	.46	.27	1.82	2.99	3.48	2.18	1.99	2.93	1.99	2.64	2.47	2.10	25.32
Q	* .10	.07	.02	.04	.06	.01	0	.05	T	.01	.04	.09	.49
P													
Q													
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** Av. P	1.11	1.08	1.96	2.78	3.43	4.80	3.43	3.51	3.38	2.44	2.02	1.26	31.20
** Av. Q	.43	.92	1.09	.65	.60	.77	.44	.32	.29	.25	.27	.25	6.28
Normal P	1.49	1.42	2.22	2.72	3.89	4.60	3.77	3.44	3.81	2.50	1.92	1.52	33.30

**Notes:** \*\* Does not include part year amounts for 1924. Normal P based on 105 yr. record (1851-1955) at Dubuque, Iowa.





LOCATION: Page Co., Iowa; 1 mi. N. of Blanchard; Tarkio River, Missouri River Basin.

AREA: 128,000 ac. (200 sq. mi.) SHAPE: Long and narrow; about 4.5 mi. wide by 43 mi. long.

SLOPES: 10% is in 0-2% class; 27% in 2-5%; 22% in 5-9%; 38% in 9-13%; 3% in 13-17%. Aspect S-SW.

SOILS: Loessial; topsoil - medium textured, granular crumb structure, moderately deep (8-14 in.); subsoil - moderately permeable; internal drainage - medium. Marshall silt loam - 52%; Shelby silt loam - 22%; Wabash silt loam - 16%; Sawmill silt loam - 8%; Sharpsburg silt loam - 1%; Nodaway silt loam - 1%.

EROSION: 1 - 15%; 2 - 57%; 3 - 3%; + - 25%.

LAND CAPABILITY: I - 2%; II - 35%; III - 56%; IV - 5%; VI - 2%.

SURFACE DRAINAGE: Good; principal waterway - 45 mi.; area well dissected, only main tributary is East Tarkio River 10 mi. long, and draining about 60 sq. mi.

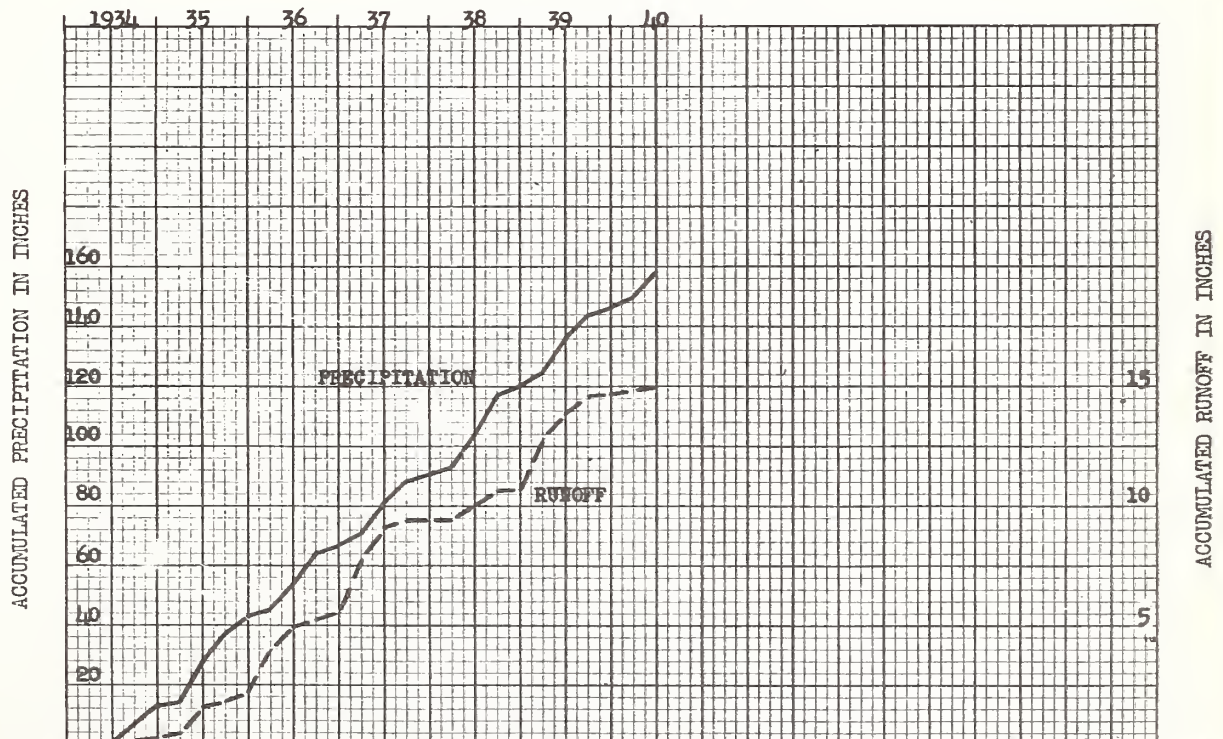
CHARACTER OF FLOW: Perennial, continuous.

INSTRUMENTATION: Runoff - artificial control, continuous water stage recorder, rating established by current meter; precipitation - 2 recording and 3 standard gages.

WATERSHED CONDITIONS: Prior to 1934 - 70% of the area was in cropland. Generally 50% or more of the cropland was in corn, a common rotation being, corn, corn, grain, hay. This was to be an area with prevailing land use practices, however, by 1940 soil conserving practices had been adapted on about 35% of the cropland.

GENERALLY REPRESENTS: Cultivated areas of the Missouri Valley Deep Loess Area having medium internal drainage, good surface drainage, and moderate to severe erosion in SW Iowa, E Nebraska and NW Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Iowa Agricultural Experiment Station and US Geological Survey.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Shenandoah, Iowa, Watershed No. 1\*

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934	P Q							1.16 T	1.74 T	4.30 .05	2.26 .08	3.08 .05	0.14 .02	12.68 .20
1935	P Q	0.64 .15	0.74 .09	0.45 .06	0.89 .01	6.76 .25	5.80 .80	2.12 .17	1.66 .07	5.13 .03	3.48 .06	2.30 .15	.34 .06	30.31 1.90
1936	P Q	1.43 .05	.77 .65	.68 1.14	1.68 .24	3.95 .50	2.53 .22	.64 .01	1.86 T	7.12 .24	1.45 .21	.35 .02	1.49 .08	23.95 3.36
1937	P Q	1.46 .01	1.01 1.18	1.94 1.07	2.71 .19	4.07 .79	3.11 .41	4.62 .31	1.57 .01	.87 T	1.42 T	.67 T	.31 T	23.76 3.97
1938	P Q	.24 T	.55 .01	1.11 .01	3.42 .08	6.08 .27	2.37 .20	2.86 .01	7.21 .43	2.99 .25	.26 T	2.32 .02	.29 .01	29.70 1.29
1939	P Q	.59 .01	1.06 .05	2.65 1.98	1.66 .04	1.45 .01	8.27 1.00	4.42 .58	3.28 .24	.45 T	1.42 T	.24 T	.82 T	26.31 3.91
1940	P Q	.81 T	.90 .01	1.69 .11	3.80 .08	1.55 .05	2.94 .04							11.69 .29
	P Q													
	P Q													
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	P Q													
** Av. P ** Av. C		.86 .04	.84 .33	1.42 .73	2.36 .11	3.98 .31	4.17 .45	2.64 .18	2.89 .12	3.48 .10	1.71 .06	1.49 .04	.56 .03	26.40 2.50
Normal P		.91	1.07	1.75	2.72	4.21	5.21	3.71	3.77	3.61	2.51	1.49	1.00	31.96

Notes: \* Listed in U.S. Geological Survey, Water Supply Papers as Tarkio River at Blanchard, Iowa.  
 \*\* Includes half year amounts for 1934 and 1940. Normal P based on 84 yr. record (1872-1955) at  
 Clarinda, Iowa. Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records:  
 P - good; Q - good.



LOCATION: Atchinson Co., Mo.; 3-1/2 mi. W. of Westboro; West Tarkio Creek, Tarkio River, Missouri River Basin.

AREA: 67,200 ac. (105 sq. mi.)

SHAPE: Long and narrow, about 3 mi. wide by 38 mi. long.

SLOPES: 20% is in 0-2% class; 22% in 2-5%; 32% in 5-9%; 25% in 9-13%; 1% in 13-17%. Aspect S-SW.

SOILS: Loessial; topsoil - medium textured, granular crumb structure, moderately deep (8-14 in.); subsoil - moderately permeable; internal drainage - medium. Marshall silt loam - 61%; Shelby silt loam - 12%; Wabash silt loam - 27%.

EROSION: 1 - 21%; 2 - 36%; 3 - 28%; + - 15%.

LAND CAPABILITY: I - 3%; II - 36%; III - 53%; IV - 6%; VI - 2%.

SURFACE DRAINAGE: Good; principal waterway - 39 mi., area well dissected with many small tributaries, none over about 4 mi. long.

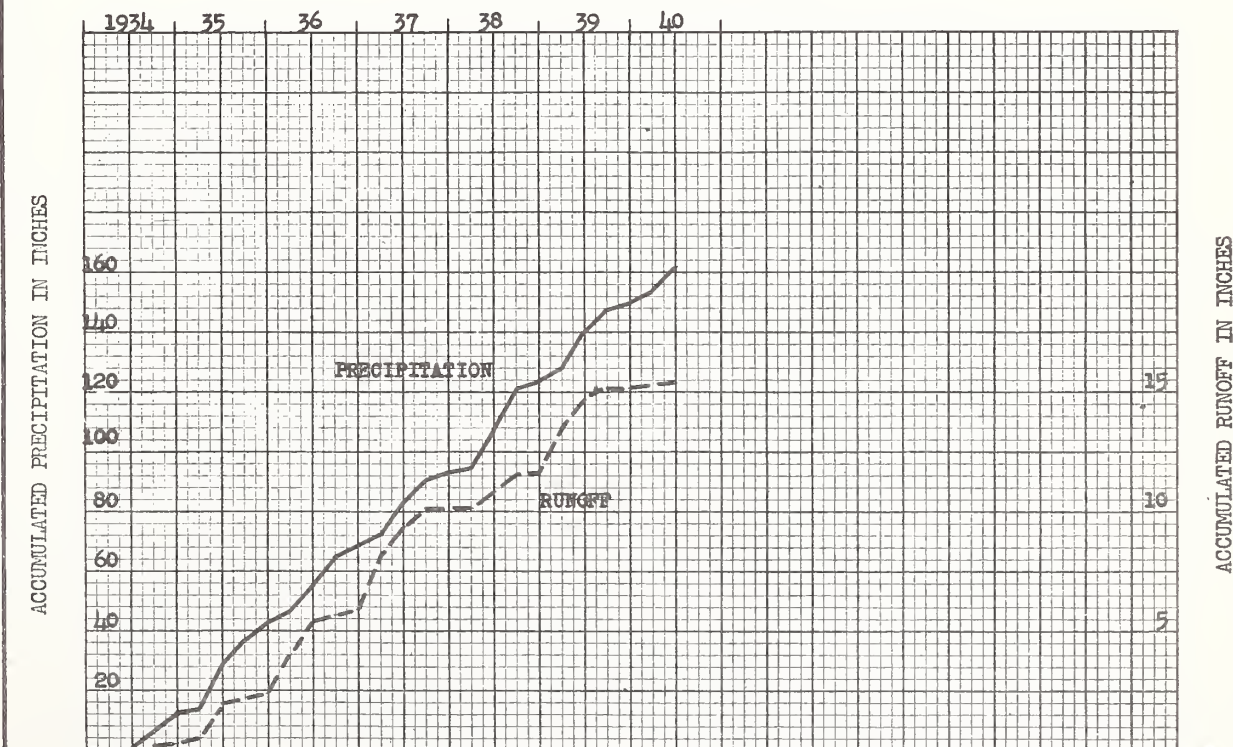
CHARACTER OF FLOW: Perennial, continuous.

INSTRUMENTATION: Runoff - artificial control, continuous water stage recorder, rating established by current meter; precipitation - 1 recording and 4 standard gages.

WATERSHED CONDITIONS: Prior to 1934 - 95% of the area was in cropland. Generally 50% or more of the cropland was in corn, a common rotation being corn, corn, grain, hay. By 1937 - 70% of the area was under cooperative agreement with Soil Conservation Service. By 1940 - the soil conserving practices in effect were: 8% decrease in clean tilled crops; 3% retired from cultivation; 4% graded terraces; cropland winter protected, 18%; approved rotations, 30%.

GENERALLY REPRESENTS: Cultivated areas of the Missouri Valley Deep Loess Area having medium internal drainage, good surface drainage, and moderate to severe erosion in SW Iowa, E Nebraska, and NW Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA, US Geological Survey, and Iowa Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Shenandoah, Iowa, Watershed No. 2\*

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934	P Q							1.00 T	1.63 T	4.28 .07	2.38 .19	3.28 .04	0.20 .02	12.77 .32
1935	P Q	0.84 .11	0.52 .07	0.27 .05	0.91 .01	6.07 .31	7.12 1.16	1.85 .14	1.55 .01	4.69 .03	3.41 .06	2.41 .13	.32 .05	29.96 2.13
1936	P Q	2.21 .03	.62 .64	.56 .93	2.31 .39	3.59 .67	3.02 .32	.38 .01	2.28 .01	6.84 .19	1.79 .19	.17 .02	1.67 .06	25.44 3.46
1937	P Q	1.31 .01	.96 1.26	1.72 .95	3.11 .20	4.00 .64	3.19 .39	5.31 .70	1.76 .03	1.00 T	1.35 T	.63 T	.42 T	24.76 4.18
1938	P Q	.20 T	.68 .01	1.32 .01	3.37 .05	5.73 .16	3.25 .45	2.94 .01	7.36 .41	3.28 .33	.25 .01	2.35 .03	.28 .01	31.01 1.48
1939	P Q	.53 .01	.85 .02	2.70 1.89	1.74 .05	2.03 .08	8.36 1.09	4.34 .34	2.92 .11	.46 T	1.56 T	.25 T	.74 .01	26.48 3.60
1940	P Q	.71 T	.93 .01	1.66 .11	3.64 .07	1.40 .07	2.79 .02							11.13 .28
	P Q													
	P Q													
	P Q													
	P Q													
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	P Q													
**Av. P		.97	.76	1.37	2.51	3.80	4.62	2.64	2.92	3.43	1.79	1.51	.61	26.93
**Av. Q		.03	.33	.66	.13	.32	.57	.20	.10	.10	.07	.04	.02	2.57
Normal P		.91	1.07	1.75	2.72	4.21	5.21	3.71	3.77	3.61	2.51	1.49	1.00	31.96

Notes: \* Listed in U.S. Geological Survey, Water Supply Papers as West Tarkio Creek near Westboro, Mo. \*\* Includes half year amounts for 1934 and 1940. Normal P based on 84 yr. record (1872-1955) at Clarinda, Iowa. Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records: P - good; Q - good.

LOCATION: Ingham Co., Mich.; on Campus of Michigan State University; Grand River Basin.

AREA: 1.98 ac.

SHAPE: Roughly rectangular, about 290 ft. wide by 350 ft. long.

SLOPES: 58% is in 2-6% class; 42% in 6-12%. Aspect N-NW.

SOILS: Glacial; Spinks Fine Sandy Loam and Loamy Fine Sand - 80%; topsoil - moderately coarse to coarse textured, weak structure (6-8" thick); subsoil - coarse textured with moderately coarse textured lenses or layers (1/2-3" thick), weak structure; moderately rapid to rapid permeability; well drained. Hillsdale Fine Sandy Loam - 20%; topsoil - moderately coarse textured, weak structure (6-8" thick); subsoil - medium textured, moderately coarse textured substratum at 40-50"; weak medium subangular structure; well drained. In watershed center is small soil area with strong lenses impeding downward movement of water.

EROSION: 1 - 80%; 2 - 20%.

LAND CAPABILITY: I - 20%; III - 80%.

SURFACE DRAINAGE: Good; clearly defined waterway down center - 305 ft.; natural watershed, generally asymmetric. Earth dike on each side of measuring station to divert all surface runoff into flume.

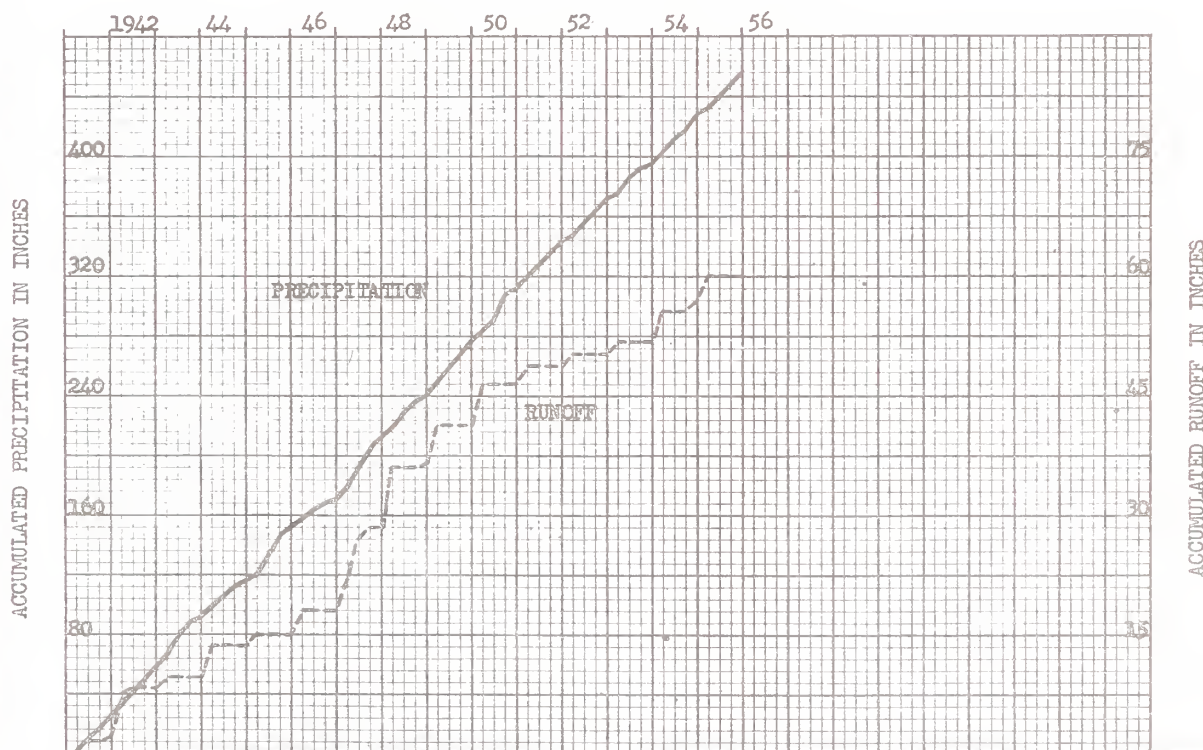
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - Type 3H metal flume, concrete approach section and silt box; precipitation - recording gage, supplemented by standard and shielded gages.

WATERSHED CONDITIONS: Prior to 1941 - sheep pasture; 1941-1955 - rotation farming, generally across the slope; Corn with rye winter cover crop, 1941; oats, 1942; hay, 1943; hay and pasture, 1944-45; corn with rye winter cover crop, 1946; oats, 1947; hay, 1948-49; corn with rye winter cover crop, 1950-51; oats, 1952; hay, 1953-54; corn (plow-planted), 1955. All crop yields were superior.

GENERALLY REPRESENTS: Cultivated areas of Michigan-Indiana-Ohio Till Plain found in the south-central section of Michigan, and the north-central portions of Indiana and Ohio.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Michigan Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) EAST LANSING, MICHIGAN, Watershed A**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P		0.21	1.06	2.08	2.96	4.65	0.59	2.39	2.00	6.34	2.52	1.59	26.89
Q		.68	1.19	.12	0	1.38	0	0	0	.54	.01	0	3.92
1942 P	1.73	.56	3.26	.63	4.79	5.44	4.05	2.49	1.97	3.47	3.17	2.47	34.03
Q	.37	.28	4.49	0	.24	.69	0	0	0	0	0	.05	6.12
1943 P	1.61	1.05	2.58	2.49	8.44	3.38	3.84	2.42	3.35	1.48	2.05	.37	33.06
Q	0	.60	.86	.01	.15	T	.06	0	0	0	T	0	1.68
1944 P	1.30	1.74	2.48	2.41	3.02	2.27	.86	2.90	2.65	.52	1.74	.94	22.83
Q	.07	1.96	1.68	.04	T	0	0	0	0	0	0	0	3.75
1945 P	.26	1.18	2.84	3.37	7.52	3.81	2.73	5.02	6.24	2.34	1.06	1.11	37.48
Q	0	1.02	.02	0	T	T	0	.01	.01	0	0	.59	1.65
1946 P	1.58	1.45	2.16	.74	3.98	2.71	.05	.73	1.80	2.16	1.82	2.47	21.65
Q	.54	.03	1.99	0	0	.39	0	0	0	0	0	.07	3.02
1947 P	2.83	.17	1.33	5.72	5.91	3.01	2.56	4.25	6.14	2.73	1.49	1.45	37.59
Q	1.46	.06	2.81	3.21	.79	.20	.02	.30	1.07	0	0	0	9.92
1948 P	.94	1.76	4.09	2.33	5.55	3.97	2.12	.85	1.63	.59	2.50	2.23	28.56
Q	0	2.49	1.44	0	.07	0	0	0	0	0	0	.41	4.41
1949 P	3.23	2.38	2.65	1.75	2.67	5.67	2.83	2.80	2.44	2.45	1.27	4.29	34.43
Q	1.88	2.63	.14	0	T	T	0	0	0	0	0	0	4.65
1950 P	3.34	2.89	1.61	4.78	1.36	4.83	5.21	4.40	3.82	1.62	3.03	1.70	38.59
Q	.19	1.58	3.28	0	0	.03	.01	.34	0	0	0	0	5.43
1951 P	2.45	1.39	1.54	3.15	3.20	2.96	2.12	2.66	2.54	4.20	2.43	2.16	30.80
Q	.09	1.79	.04	0	0	0	.08	0	0	0	0	0	2.00
1952 P	1.59	1.26	2.08	3.18	4.71	1.30	2.26	3.51	1.84	.63	3.77	1.36	27.49
Q	.01	.08	1.74	0	0	0	0	0	0	0	0	0	1.83
1953 P	1.59	.69	2.44	2.65	2.45	4.09	2.39	3.64	.90	1.56	.72	1.52	24.64
Q	.58	.09	.81	0	0	0	0	.06	0	0	0	0	1.54
1954 P	1.02	3.31	2.70	1.79	1.53	5.07	2.26	1.73	2.32	5.70	1.90	1.97	31.30
Q	.32	2.97	.55	.08	0	.06	0	0	0	.19	0	.59	4.76
1955 P	.98	1.35	2.19	1.81	1.56	5.39	3.59	3.29	1.15	2.89	3.05	.49	27.74
Q	.77	1.38	1.36	0	0	.04	0	0	0	0	0	0	3.55
P													
Q													
P													
Q													
P													
Q													
P													
Q													
** Av. P	1.75	1.51	2.43	2.63	4.05	3.85	2.63	2.91	2.77	2.31	2.14	1.75	30.73
** Av. Q	.45	1.21	1.52	.24	.09	.10	.01	.05	.08	.01	0	.12	3.88
Normal P	1.82	1.90	2.35	2.58	3.42	3.51	3.10	2.82	2.91	2.47	2.48	2.07	31.43

Notes: \* Partly estimated. \*\*Does not include part year amounts for 1941. Normal P based on 50-year record (1878-1927) at East Lansing, Michigan. Months of Sept., Oct., Nov., Dec., Jan., Feb., Mar., Apr., and May include snow and snow melt.



LOCATION: Ingham Co., Mich.; on Campus of Michigan State University; Grand River Basin.

AREA: 1.35 ac.

SHAPE: Roughly rectangular, about 180 ft. wide by 360 ft. long.

SLOPES: 49% is in 2-6% class; 51% in 6-12%. Aspect N-NW.

SOILS: Glacial; Spinks Fine Sandy Loam and Loamy Fine Sand - 91%; topsoil - moderately coarse to coarse textured, weak structure (6-8" thick); subsoil - coarse textured with moderately coarse textured lenses or layers (1/2-3" thick), weak structure; moderately rapid to rapid permeability; well drained. Tuscola Fine Sandy Loam - 9%; topsoil - moderately coarse textured, weak structure (6-8" thick); subsoil - medium textured, weak structure; moderately rapid permeability, somewhat stratified; well drained. In upper center of watershed is small area with strong lenses which impede downward movement of water.

LAND CAPABILITY: III - 100%.

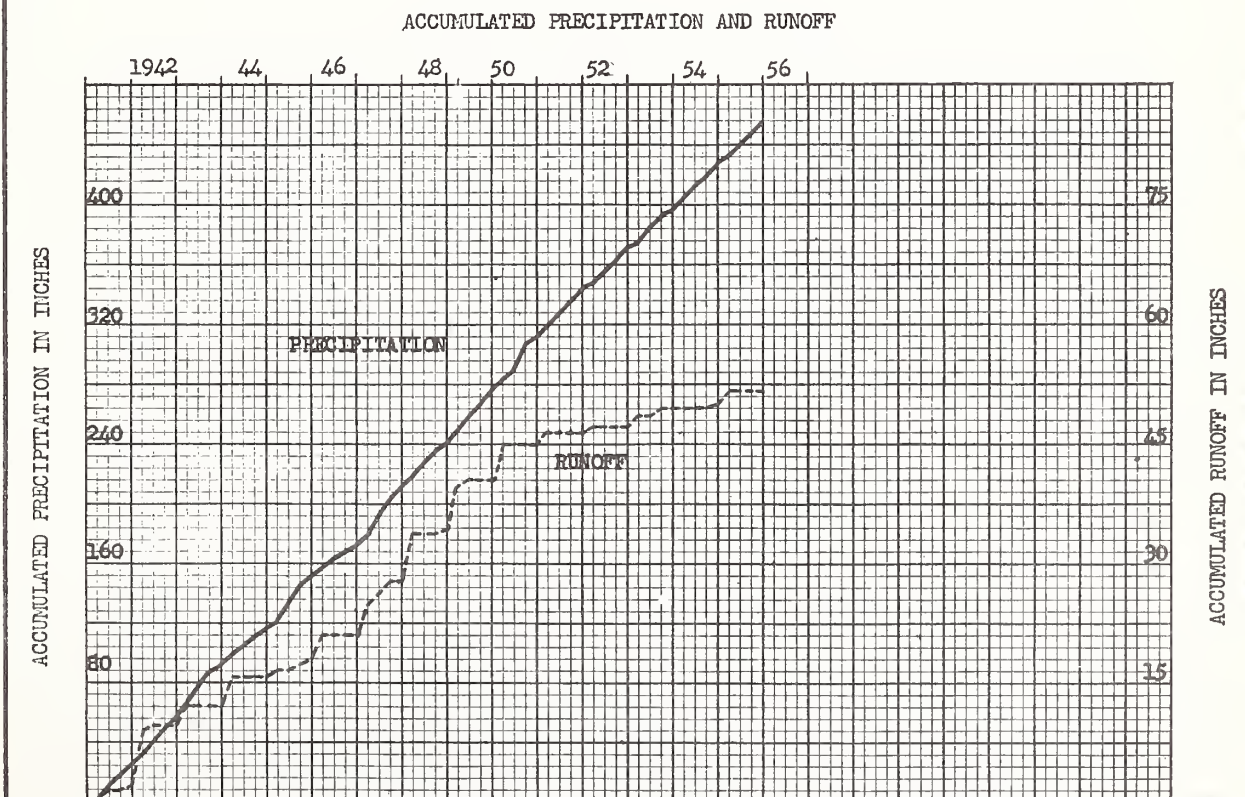
SURFACE DRAINAGE: Good; clearly defined waterway down center - 295 ft.; natural watershed, generally asymmetric. Earth dike on each side of measuring station to divert all surface runoff into flume.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - Type 3H metal flume, concrete approach section and silt box; precipitation - recording gage, supplemented by standard and shielded gages.

WATERSHED CONDITIONS: Prior to 1941 - sheep pasture; 1941-1955 - rotation farming, generally across the slope; Corn with rye winter cover crop, 1941; oats, 1942; hay, 1943; hay and pasture, 1944-45; hay, 1946; corn with rye winter cover crop, 1947-48; oats, 1949; hay, 1950-51; corn with rye winter cover crop, 1952-53; oats, 1954; hay, 1955. All crop yields were superior.

GENERALLY REPRESENTS: Cultivated areas of Michigan-Indiana-Ohio Till Plain found in the south-central section of Michigan, and the north-central portions of Indiana and Ohio



Cooperative Research Project of USDA and Michigan Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) EAST LANSING, MICHIGAN, Watershed B**

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941	P		0.21	1.06	2.08	2.96	4.65	0.59	2.39	2.00	6.84	2.52	1.59	26.89
	Q				.18	0	1.09	0	.02	0	.79	.07	0	2.15
1942	P	1.73	.56	3.26	.63	4.79	5.44	4.05	2.49	1.97	3.47	3.17	2.47	34.03
	Q	.32	.24	5.90	0	.42	.82	0	0	0	0	0	.01	7.71
1943	P	1.61	1.05	2.58	2.49	8.44	3.38	3.84	2.42	3.35	1.48	2.05	.37	33.06
	Q	0	.68	1.18	.03	.17	0	.07	0	0	0	T	0	2.13
1944	P	1.30	1.74	2.48	2.41	3.02	2.27	.86	2.90	2.65	.52	1.74	.94	22.83
	Q	.12	1.95	1.72	.05	T	0	0	0	0	0	0	0	3.84
1945	P	.26	1.18	2.84	3.37	7.52	3.81	2.73	5.02	6.24	2.34	1.06	1.11	37.48
	Q	0	.98	.07	0	T	0	0	.03	.02	0	0	.63	1.73
1946	P	1.58	1.45	2.16	.74	3.98	2.71	.05	.73	1.80	2.16	1.82	2.47	21.65
	Q	.68	.29	2.32	0	0	0	0	0	0	0	0	.02	3.31
1947	P	2.83	.17	1.33	5.72	5.91	3.01	2.56	4.25	6.14	2.73	1.49	1.45	37.59
	Q	1.42	.06	2.55	1.61	0	0	0	.13	1.07	0	0	0	6.84
1948	P	.94	1.76	4.09	2.33	5.55	3.97	2.12	.85	1.63	.59	2.50	2.23	28.56
	Q	0	3.00	2.88	0	.04	.34	0	0	0	0	0	.49	6.75
1949	P	3.23	2.38	2.65	1.75	2.67	5.67	2.83	2.80	2.44	2.45	1.27	4.29	34.43
	Q	2.22	2.79	.23	0	.19	.36	0	.05	0	0	0	.05	5.89
1950	P	3.34	2.89	1.61	4.78	1.36	4.83	5.21	4.40	3.82	1.62	3.03	1.70	38.59
	Q	.89	.99	2.32	.09	0	0	0	.08	0	0	0	0	4.37
1951	P	2.45	1.39	1.54	3.15	3.20	2.96	2.12	2.66	2.54	4.20	2.43	2.16	30.80
	Q	.08	1.56	.01	0	0	0	0	0	0	0	0	0	1.65
1952	P	1.59	1.26	2.08	3.18	4.71	1.30	2.26	3.51	1.84	.63	3.77	1.36	27.49
	Q	0	.06	.97	0	0	0	0	0	0	0	0	0	1.03
1953	P	1.59	.69	2.44	2.65	2.45	4.09	2.39	3.64	.90	1.56	.72	1.52	24.64
	Q	.24	.12	.61	0	0	.11	.06	.46	0	0	0	0	1.60
1954	P	1.02	3.31	2.70	1.79	1.53	5.07	2.26	1.73	2.32	5.70	1.90	1.97	31.30
	Q	.03	.28	.40	0	0	0	0	0	0	T	0	.09	.80
1955	P	.98	1.35	2.19	1.81	1.56	5.39	3.59	3.29	1.15	2.89	3.05	.49	27.74
	Q	.31	1.04	.76	0	0	0	0	0	0	0	0	0	2.11
	P													
	Q													
	P													
	Q													
	P													
	Q													
** Av. P		1.75	1.51	2.43	2.63	4.05	3.85	2.63	2.91	2.77	2.31	2.14	1.75	30.73
** Av. Q		.45	1.00	1.57	.13	.06	.12	.01	.05	.07	0	0	.09	3.55
Normal P		1.82	1.90	2.35	2.58	3.42	3.51	3.10	2.82	2.91	2.47	2.48	2.07	31.43

Notes: \* Partly estimated. \*\*Does not include part year amounts for 1941. Normal P based on 50-year record (1878-1927) at East Lansing, Michigan. Months of Sept., Oct., Nov., Dec., Jan., Feb., Mar., Apr., and May include snow and snow melt.



LOCATION: Clinton Co., Mich.; on lands of Rose Lake Wildlife Experiment Station; approximately 10 mi. N. of East Lansing; Grand River Basin.

AREA: 1.65 ac.

SHAPE: Roughly triangular, about 300 ft. by 360 ft. by 380 ft.

SLOPES: 50% is in 2-6% class; 45% in 6-12%; 5% in 12-14%. Aspect N.

SOILS: Conover Silt Loam and Loam - 9%; topsoil - medium textured (6-9" thick); subsoil - moderately fine textured, strongly developed, medium size subangular blocky structure; slowly permeable; imperfectly drained. Miami Loam - 52%; similar to Conover except well drained. Hillsdale Sandy Loam - 14%; topsoil - moderately coarse textured, weak structure (6-9" thick); subsoil - medium textured, weakly developed, medium subangular blocky structure; moderately rapid permeability; well drained. Hillsdale-Spinks Sandy Loam Complex - 25%; similar to Hillsdale except some coarser textured soils are included.

EROSION: U

LAND CAPABILITY: I- 9%; II- 75%; III- 16%.

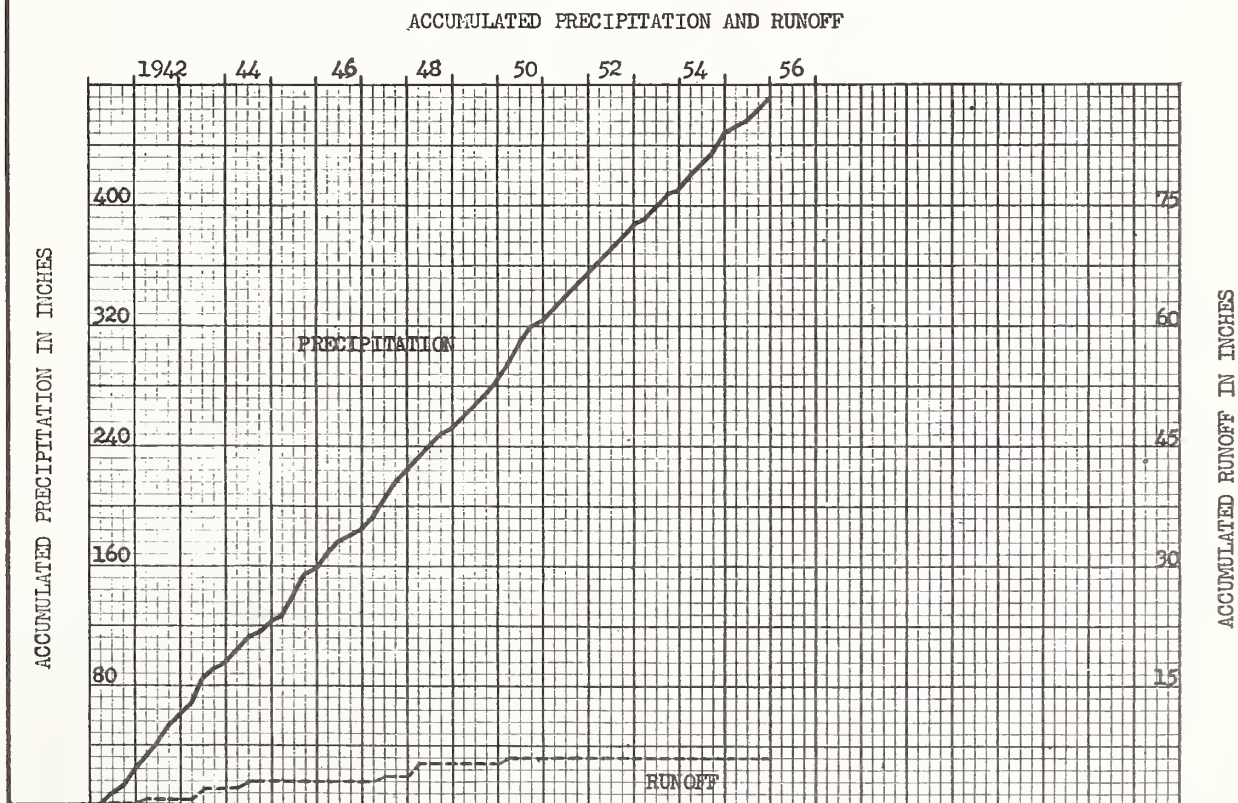
SURFACE DRAINAGE: Good; two clearly defined waterways dividing it roughly into thirds; natural watershed, generally asymmetric. Small earth dike on each side of measuring station to divert all surface flow into approach flume. Principal drainageway - 70', secondaries 220' and 250'.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - Type 3H metal flume, concrete approach section and silt box; precipitation - recording gage, supplemented by standard and shielded gages.

WATERSHED CONDITIONS: Prior to 1951 - well-stocked ungrazed oak-hickory cover with dense canopy. Clear-cut for saw-logs and cordwood, winter of 1951-52, and allowed to reforest naturally.

GENERALLY REPRESENTS: Woodland areas of Michigan-Indiana-Ohio Till Plain found in the south-central section of Michigan, and the north-central portions of Indiana and Ohio



Cooperative Research Project of USDA and Michigan Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) EAST LANSING, MICHIGAN, Watershed W

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P			1.20	1.87	2.37	2.60	0.60	3.36	2.51	7.10	2.74	1.43	25.78
Q			T	0	0	0	0	0	0	0	0	0	T
1942 P	2.07	.64	4.95	.60	4.60	3.60	4.72	2.99	3.16	3.36	3.40	3.02	37.11
Q	0	0	.79	0	0	0	0	0	0	0	0	0	.79
1943 P	2.20	1.47	2.68	2.55	6.52	5.37	2.53	4.01	3.47	1.88	1.90	.41	34.99
Q	0	.03	.25	0	.30	1.17	0	0	0	0	0	0	1.75
1944 P	1.22	1.94	2.65	1.51	5.70	1.99	.93	3.28	2.66	.62	2.00	1.13	25.63
Q	0	0	.02	0	.58	0	T	T	0	0	0	0	.60
1945 P	.41	1.17	2.19	3.60	7.21	4.00	2.60	4.95	6.18	3.27	1.51	1.33	38.42
Q	0	0	0	0	.08	0	0	T	0	0	0	0	.08
1946 P	1.62	1.94	2.19	.70	3.96	3.66	.18	1.16	1.71	2.15	1.78	2.83	23.88
Q	0	0	.07	0	0	0	0	0	0	0	0	0	.07
1947 P	3.24	.71	1.84	5.78	4.23	3.31	2.61	5.33	5.66	3.08	1.79	1.32	39.10
Q	0	0	0	.74	0	0	0	0	0	0	0	0	.74
1948 P	1.19	2.14	4.08	2.11	4.28	3.98	2.75	1.33	2.14	.64	2.61	2.32	29.57
Q	0	0	.88	0	.43	0	0	0	0	0	0	0	1.31
1949 P	3.25	2.50	2.28	2.05	2.16	3.43	3.77	2.06	2.62	1.97	1.68	4.69	32.46
Q	.01	0	0	0	0	0	T	T	0	0	0	0	.01
1950 P	3.53	3.10	2.06	4.61	2.22	4.94	4.75	3.40	3.94	1.69	3.12	1.97	39.33
Q	0	.02	.27	.18	0	.13	0	0	0	0	0	0	.60
1951 P	2.85	1.56	1.76	3.80	3.09	3.17	1.41	2.54	2.72	4.21	2.97	2.66	32.74
Q	T	0	0	0	0	0	0	0	0	0	0	0	T
1952 P	2.01	1.54	2.09	3.58	4.09	1.15	2.79	4.35	1.68	.51	3.55	1.73	29.07
Q	0	0	0	.05	0	0	0	T	0	0	0	0	.05
1953 P	1.84	.84*	2.25	2.64	2.30	2.87*	2.63	2.94	1.07	1.77	1.04	1.89	24.08*
Q	.02	0	0	0	0	0	0	0	0	0	0	0	.02
1954 P	1.67	4.23	3.13	2.90	1.54	4.29	1.94	1.77	2.06	6.40	2.74	2.52	35.19
Q	0	0	.14	0	0	0	0	0	0	0	0	0	.14
1955 P	1.16	1.80	2.18	1.38	2.41	.50	4.11	3.69	1.49	3.64	3.68	.65	26.69
Q	0	0	.10	0	0	0	0	0	0	0	0	0	.10
P													
Q													
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P													
Q													
** Av. P	2.02	1.83	2.60	2.70	3.88	3.30	2.71	3.13	2.90	2.51	2.41	2.03	32.02
** Av. Q	0	0	.18	.07	.11	.09	0	0	0	0	0	0	.45
Normal P	1.82	1.90	2.35	2.58	3.42	3.51	3.10	2.82	2.91	2.47	2.48	2.07	31.43

Notes: \* Partly estimated. \*\*Does not include part year amounts for 1941. Normal P based on 50-year record (1878-1927) at East Lansing, Michigan. Months of Sept., Oct., Nov., Dec., Jan., Feb., Mar., Apr., and May include snow and snow melt.

11-55

BETHANY, MISSOURI

Watershed Pa-A

**LOCATION:** Harrison Co., Mo.; 9 mi. W. of Bethany; Big Creek Watershed, Grand River Basin.

**AREA:** 2.12 ac. prior to 8/12/38; **SHAPE:** Triangular, 350 ft. base, 500 ft. altitude.  
2.03 ac. thereafter.

**SLOPES:** 30% is in 5-9% class; 35% in 9-14%; 30% in 14-20%; 5% above 20%. Aspect E.

**SOILS:** Glacial; topsoil - friable loam, moderate very fine crumb structure, 9-12 in. thick - 81%, 4-7 in. thick - 19%; subsoil - moderately slow permeability; slow internal drainage and a moderately well-drained soil profile; cracks are common in dry weather. Shelby loam - 96%; colluvial material - 4%.

**EROSION:** 1 - 76%; 2 - 20%; + - 4%.

**LAND CAPABILITY:** III - 30%; IV - 70%.

**SURFACE DRAINAGE:** Good; 6 terraces, total length 1710 ft., grade variable 0" to 2"/100 ft., drain to terrace outlet 350' long on north boundary; no natural watercourses.

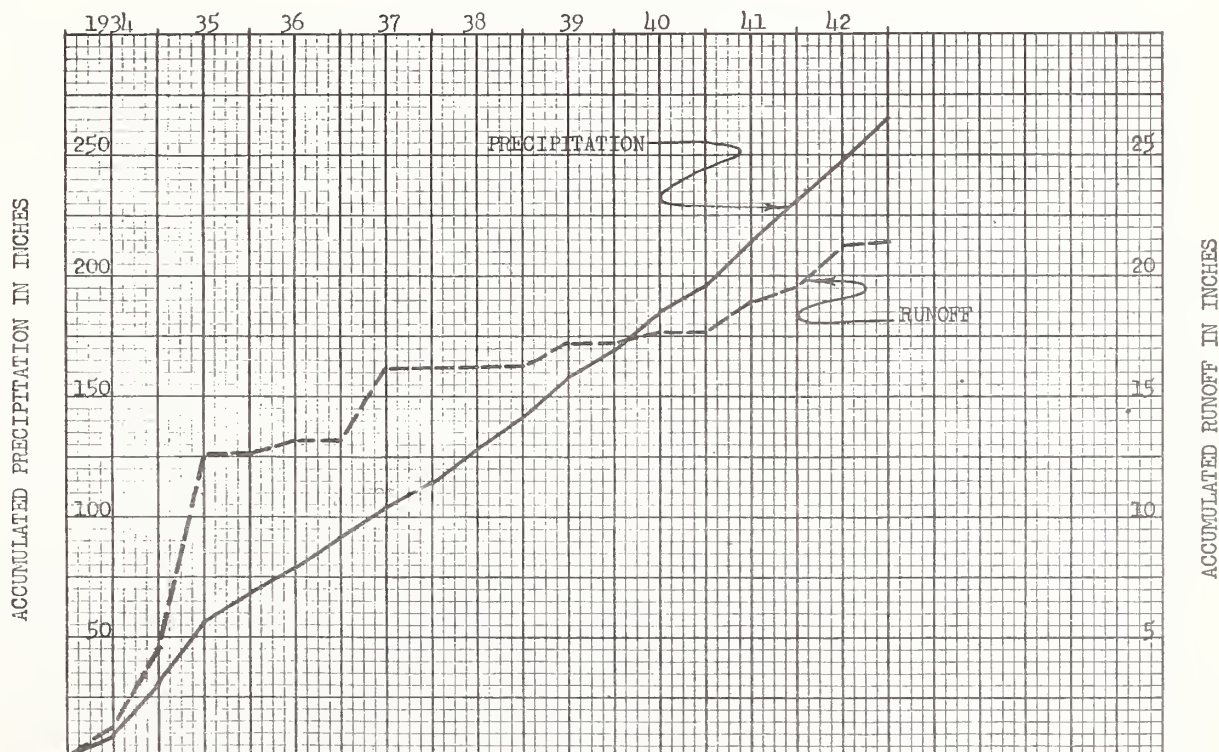
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 1 ft. sheet metal Parshall flume, Bristol float type recorder, 12 hr. chart. Precipitation - Friez recorder gage #2 for 1934, standard gage #4 thereafter.

**WATERSHED CONDITIONS:** Virgin sod, native grasses predominately blue grass. Terraces constructed in the fall of 1933. Good cover on terraces and terrace outlet not established until 1938. Undisturbed pasture condition class excellent for the entire period. Grazing mainly with cattle, and overgrazing was not permitted. A good growth of grass from 4 to 5 in. in height was acquired in the spring months before the start of grazing.

**GENERALLY REPRESENTS:** Pasture land in the Iowa-Missouri Heavy Till with some Loess Cappings and the Mixed Loess and Till **Prairies** areas which occur largely in northcentral Missouri and south-central Iowa, and to a lesser extent in southeastern Nebraska and northeastern Kansas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research project of USDA and the Missouri Agricultural Experiment Station

Bethany, Mo., Watershed Pa-A

Notes: \* Partially estimated. Normal P based on 65 year record (1890-1954) at Bethany, Mo. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: Good, except for winter months, which is fair.



11-55

BETHANY, MISSOURI

Watershed Pa-B

**LOCATION:** Harrison Co., Mo.; 9 mi. W. of Bethany; Big Creek Watershed, Grand River Basin.

**AREA:** 6.52 ac. prior to 11/22/35; **SHAPE:** Pentagon, about 500 ft. across.  
5.56 ac. thereafter.

**SLOPES:** 5% is in 0-5% class; 10% in 5-9%; 80% in 9-14%; 5% in 14-20%. Aspect W.

**SOILS:** Glacial; top soil - friable loam, moderate very fine crumb structure, 9-14 in. thick - 100%; subsoil - moderately slow permeability; slow internal drainage and moderately well-drained soil profile; cracks are common in dry weather. Shelby loam - 64%; colluvial material - 36%.

**EROSION:** 1 - 64%; + - 36%.

**LAND CAPABILITY:** III - 15%; IV - 85%.

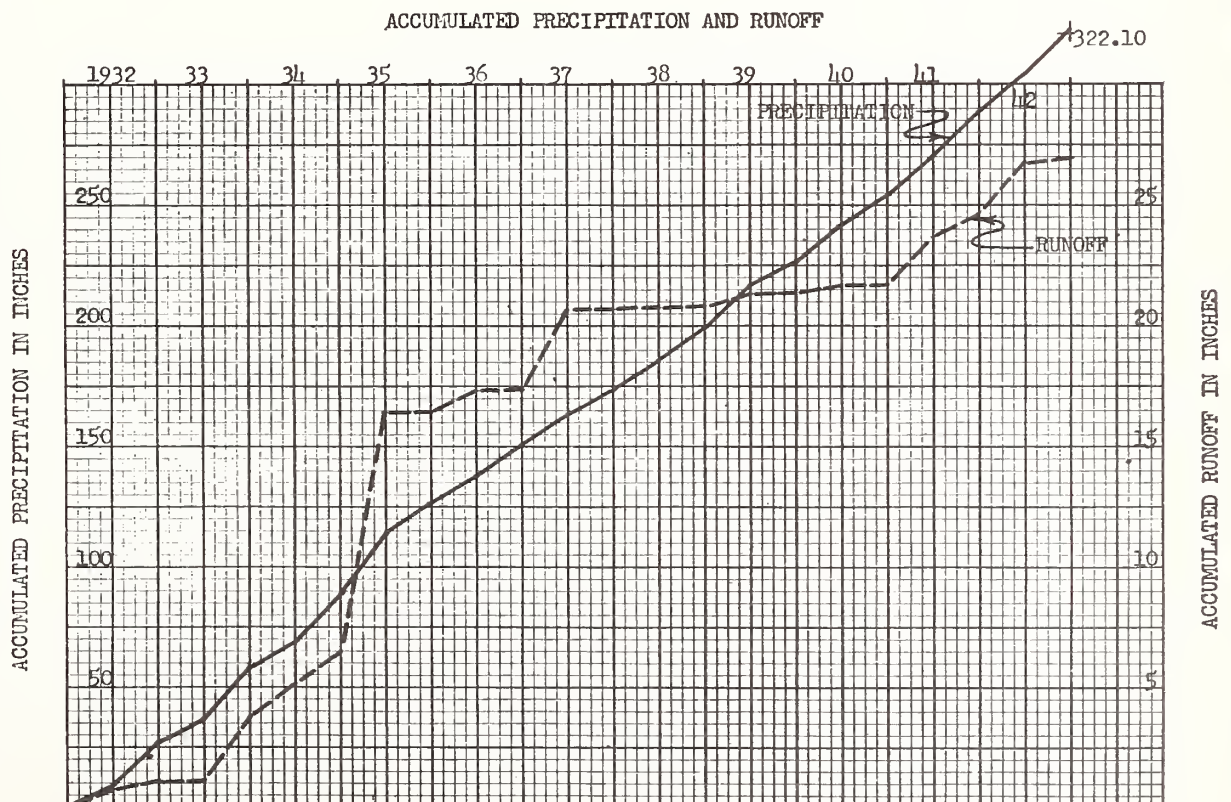
**SURFACE DRAINAGE:** Good; a well-defined draw dissects area in two parts, one part about 3 to 4 times larger than the other. Length of principal watercourse - 600 ft.

**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 2 ft. sheet metal Parshall flume, Bristol float recorder to 1939, Friez F.W.-1 float recorder thereafter. Precipitation - Friez recorder gage #2 until 1935, standard gage #4 in 1935-36, standard gage #12 thereafter.

**WATERSHED CONDITIONS:** Virgin sod, native grasses predominately blue grass. Four small overfalls in the drainage way were protected by sheet metal and creosoted lumber flumes from 1931 to 1935. On Nov. 22, 1935 the measuring equipment was moved approximately 100 ft. upstream, thereby eliminating the necessity for the largest flume. The remaining three sheet metal flumes were replaced at this time with sod flumes. Pasture condition class excellent for entire period. Grazing mainly with cattle, and over-grazing was not permitted. A good growth of grass from 4 to 5 in. in height was acquired in the spring months before the start of grazing.

**GENERALLY REPRESENTS:** Pasture land in the Iowa-Missouri Heavy Till with some Loess Cappings and the Mixed Loess and Till **Prairies** areas which occur largely in northcentral Missouri and south-central Iowa, and to a lesser extent in southeastern Nebraska and northeastern Kansas.



Cooperative Research Project of USDA and the Missouri Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Bethany, I.O., Watershed Pa-B

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932 P Q	1.01 0	0.33 0	0.30 .34	1.71 0	2.72 0	3.80 .42	4.94 .06	5.23 .08	2.76 .09	1.73 0	1.66 0	1.17 .05	27.36 1.04
1933 P Q	.54 0	0 0	1.44 0	.83 0	5.05 .12	2.12 0	3.05 .08	10.78 1.24	5.32 1.31	.73 0	.40 0	1.11 T	31.37 2.75
1934 P Q	.67 0	1.02 0	.13 .01	4.20 1.27	1.65 .04	2.25 T	.50 0	3.29 0	7.41 .08	2.60 .04	7.32 1.27	.74 0	31.18 2.71
1935 P Q	1.10 .23	1.10 .25	1.72 .03	2.92 .17	9.87 4.98	8.73 4.29	.22 0	.90 0	5.97 T	1.60 0	2.63 .01	.57 0	37.33 9.96
1936 P Q	2.28 0	.27 .84	.39 0	1.79 0	4.57 .01	1.36 0	.51 0	1.30 0	7.62 .01	2.43 .01	.74 0	1.45 .03	24.11 .90
1937 P Q	2.88 * .26	.64 *1.61	1.39 *1.38	3.47 .05	2.81 .07	1.12 0	5.15 T	1.01 0	.49 0	1.37 0	.97 0	.55 0	21.85 3.37
1938 P Q	1.31 0	.39 0	1.79 0	3.23 T	5.22 .01	1.17 0	2.87 0	6.36 T	.73 0	.35 0	2.28 0	.81 0	26.51 .01
1939 P Q	.60 0	.66 0	2.70 .09	3.03 .02	.64 0	9.31 .44	2.85 .04	2.86 0	.35 0	1.14 0	2.02 0	.73 0	26.89 .59
1940 P Q	1.02 0	1.19 0	1.99 .22	2.84 0	2.61 .01	6.37 .15	1.92 0	4.15 T	.45 0	1.45 0	2.41 0	1.44 0	27.84 .38
1941 P Q	2.92 0	.44 .06	.50 0	2.43 .05	4.59 .16	5.61 1.71	.94 0	1.48 0	4.52 0	8.61 .80	.81 .05	2.18 .13	35.03 2.96
1942 P Q	.23 0	2.54 *1.08	2.15 .56	1.24 0	4.88 .22	4.24 .25	1.95 0	3.81 0	5.42 .02	2.61 .02	1.83 .05	1.73 .03	32.63 2.23
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Av. P Av. Q	1.32 .04	.78 .35	1.32 .24	2.52 .14	4.06 .51	4.19 .66	2.26 .02	3.74 .12	3.73 .14	2.24 .08	2.04 .13	1.08 .02	29.28 2.45
Normal P	1.28	1.29	2.21	3.18	4.29	5.29	3.57	4.05	3.86	2.35	1.86	1.30	34.53

**Notes:** \* Partially estimated. Normal P based on 65 year record (1890-1954) at Bethany, Mo. Months of Jan, Feb., March, April and Dec. include snow and snow melt. Quality of records: Good, except for winter months, which is fair.

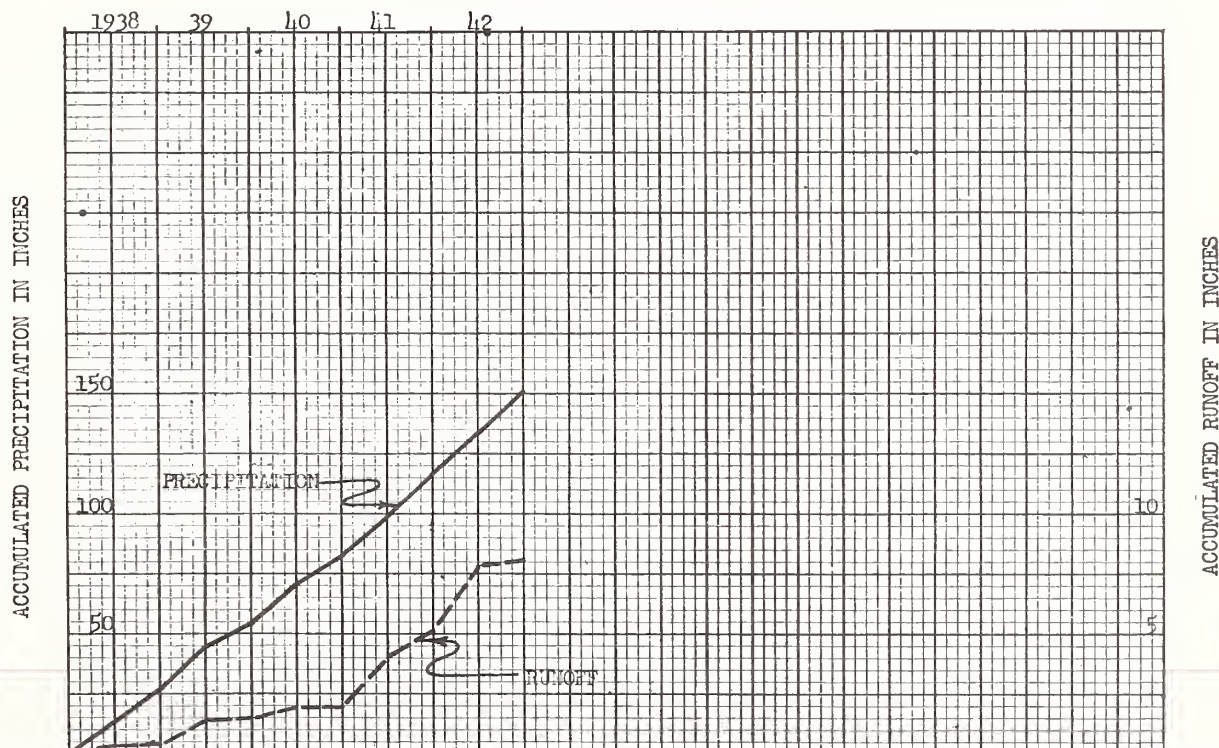


11-55

BETHANY, MISSOURI Watershed Pa-C

LOCATION: Harrison Co., Mo.; 9 mi. W. of Bethany; Big Creek Watershed, Grand River Basin.AREA: 1.97 ac.SHAPE: Irregular quadrangle; sides 400', 350', 300' and 150'.SLOPES: 25% is in 9-14% class; 65% in 14-20%; 10% above 20%. Aspect E.SOILS: Glacial; topsoil - friable loam, moderate very fine crumb structure, 9-12 in. thick - 83%, 4-6 in. thick - 17%; subsoil - moderately slow permeability; slow internal drainage and a moderately well-drained soil profile; cracks are common in dry weather. Shelby loam - 55%; colluvial - 45%.EROSION: 1 - 38%; 2 - 17% + - 45%.LAND CAPABILITY: IV - 100%.SURFACE DRAINAGE: Good; concentrating dikes, 200' long on left and 220' long on right, form lower boundary and lead runoff to measuring equipment. In Nov. 1939 area was contour furrowed at 1' vertical spacing with effective storage capacity of about 0.6 in. runoff. Total length of furrows 7950'.  
CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 1 ft. sheet metal Parshall flume, Bristol float recorder. Precipitation - standard gage #4.WATERSHED CONDITIONS: Virgin sod, native grass predominately blue grass. Vegetation on concentrating dikes and channels forming lower boundary was still sparse in the spring of 1940. Area was contour furrowed in November, 1939 with a special machine which constructed furrows without damaging the sod cover. Undisturbed pasture condition class excellent for the entire period. Grazing mainly with cattle and over-grazing was not permitted. A good growth of grass from 4 to 5 in. in height was acquired in the spring months before the start of grazing.GENERALLY REPRESENTS: Pasture land in the Iowa-Missouri Heavy Till with some Loess Cappings and the Mixed Loess and Till ~~Prairies~~ areas which occur largely in northcentral Missouri and south-central Iowa, and to a lesser extent in southeastern Nebraska and northeastern Kansas.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research project of USDA and the Missouri Agricultural Experiment Station



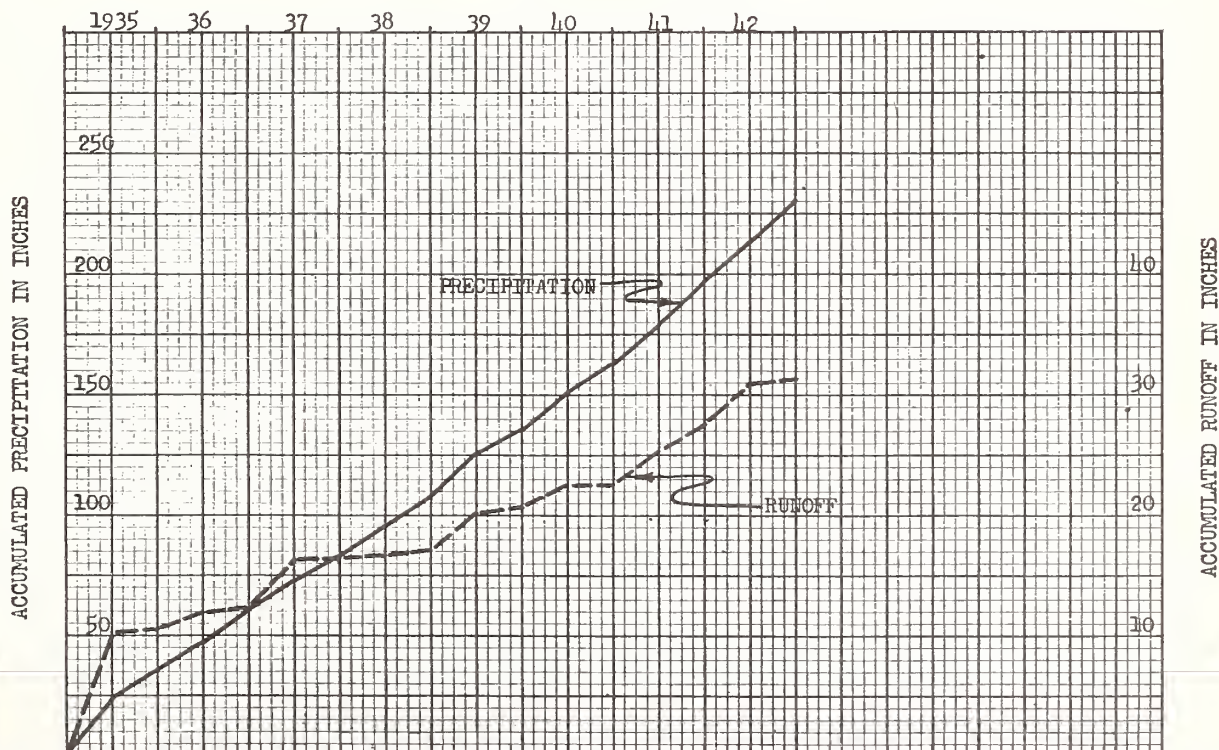


12-55

BETHANY, MISSOURI Watershed D-1

LOCATION: Harrison Co., Mo.; 9 mi. W. of Bethany; Big Creek Watershed, Grand River Basin.AREA: 7.51 ac.SHAPE: Butterfly wing, 750 ft. long, 550 ft. across.SLOPES: 10% is in 0-5% class; 55% in 5-9%; 30% in 9-14%; 5% in 14-20%. Aspect N.E.SOILS: Glacial - 89%; loessial - 11%; topsoil - friable loam, 9-14 in. thick - 54%, 4-7 in. thick - 43%, subsoil exposed on 3% of area; subsoil - slowly permeable; slow internal drainage, somewhat poorly drained soil profile; cracks are common in dry weather. Shelby loam - 58%; Shelby clay - 3%; Grundy silt loam - 11%; colluvial material - 28%.EROSION: 1 - 26%; 2 - 43%; 3 - 3%; + - 28%.LAND CAPABILITY: III - 65%; IV - 50%; VI - 5%.SURFACE DRAINAGE: Good; gullies were plowed in and 5 wire checks installed in the fall of 1930. Area well dissected by drainage ways giving good drainage. Length of principal watercourse - 800 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. reinforced concrete Parshall flume, Bristol float and Bristol pressure recorder prior to 1938; Bristol float and Friez F.W.-1 thereafter. Precipitation - Friez recorder #2 prior to 1936, standard gages #6 and #9 thereafter.WATERSHED CONDITIONS: This area was cropped continuously for 35 to 40 years prior to 1930 when it was established as a watershed. Good grassed waterways on 1.46 acres of the 7.51 acre watershed were not established until the summer of 1938. Adverse weather conditions between 1930 and 1938 made it necessary to reseed, fertilize and manure the waterways several times before they were established. Sod and sacks containing blue grass were also placed in the gullies. Beginning in 1930 an oats, wheat, meadow, and corn rotation was followed. The area was contour farmed, and each time it was plowed, the dead furrows and head lands were placed in the same location, thus creating a simulated terrace condition on the area. Average or better crops were harvested in all years except in 1939 when the wheat made 7.9 bu/ac and in 1941 when the corn made 7.4 bu/ac.GENERALLY REPRESENTS: Cultivated land in the Iowa-Missouri Heavy Till with some Loess Cappings and the Mixed Loess and Till Prairies areas which occur largely in northcentral Missouri and south-central Iowa, and to a lesser extent in southeastern Nebraska and northeastern Kansas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and the Missouri Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Bethany, Mo., Watershed D-1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P							0.50	3.29	7.41	2.60	7.32	0.14	21.26
Q							0	0	1.48	.50	3.95	0	5.93
1935 P	1.06	1.01	1.47	2.72	2.51	3.74	.14	.91	5.90	1.54	2.58	.49	36.07
Q	.40	.33	.47	.26	4.57	4.12	0	0	.01	0	.15	0	10.31
1936 P	2.28	.27	.43	2.12	4.74	1.40	.50	1.25	7.68	2.60	.10	1.40	24.77
Q	0	1.58	.01	0	.01	0	0	0	.17	.11	0	.06	1.94
1937 P	2.88	.64	1.39	3.27	2.74	1.11	5.10	1.06	.48	1.43	.98	.55	21.63
Q	*.52	*1.42	*1.36	.32	.34	0	.10	0	0	0	0	0	4.06
1938 P	1.30	.39	1.68	2.89	5.29	1.27	2.79	6.38	.76	.31	2.28	.79	26.13
Q	0	0	0	.01	.39	0	0	.31	0	0	0	0	.71
1939 P	.60	.66	2.68	2.98	.83	9.39	2.53	2.79	.35	1.16	1.99	.72	26.68
Q	0	0	.52	.33	0	2.24	.56	0	0	0	0	0	3.65
1940 P	1.02	1.19	2.02	2.53	2.85	6.18	1.96	4.10	.48	1.43	2.42	1.44	27.62
Q	0	0	1.02	0	.09	.82	0	0	0	0	0	0	1.93
1941 P	2.87	.44	.50	2.38	4.77	5.26	.96	1.50	4.65	8.84	.38	1.99	35.04
Q	0	.10	0	.02	.16	2.29	0	0	0	1.82	.15	.49	5.03
1942 P	.23	2.60	2.14	1.30	4.58	4.26	2.14	3.56	5.91	2.70	1.76	1.71	32.89
Q	0	*1.66	1.06	0	.59	.04	0	0	.06	.07	.03	.14	3.65
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** Av. P	1.53	.90	1.54	2.52	4.41	4.70	2.02	2.69	3.28	2.50	1.62	1.14	28.85
** Av. Q	.12	.64	.56	.12	.77	1.19	.08	.04	.03	.25	.04	.09	3.93
Normal P	1.28	1.29	2.21	3.18	4.29	5.29	3.57	4.05	3.86	2.35	-1.86	1.30	34.53

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1934. Normal P based on 65 year record (1890-1954) at Bethany, Mo. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: Good, except for winter months, which is fair.

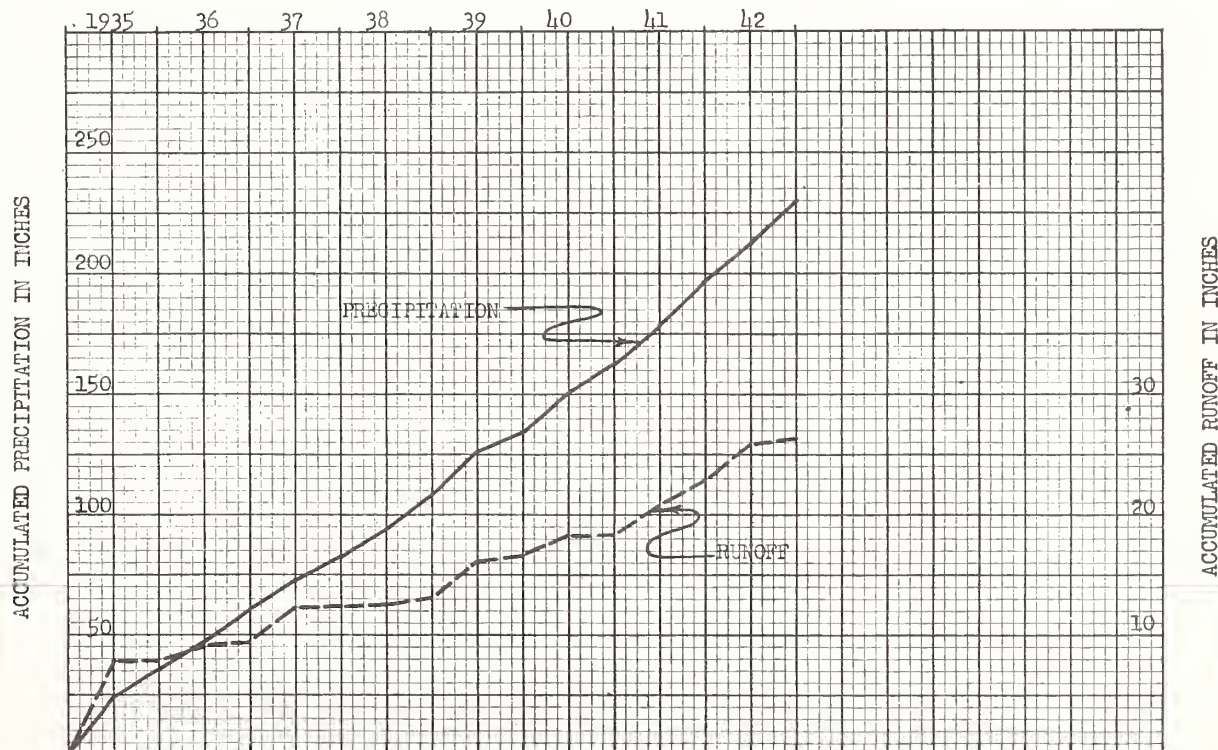


12-55

BETHANY, MISSOURI Watershed D-2

**LOCATION:** Harrison Co., Mo.; 9 mi. W. of Bethany; Big Creek Watershed, Grand River Basin.**AREA:** 8.03 ac.**SHAPE:** Roughly equilateral triangle, 650 ft. sides.**SLOPES:** 10% is in 0-5% class; 70% in 5-9%; 15% in 9-14%; 5% in 14-20%. Aspect SE.**SOILS:** Glacial - 92%, loessial - 8%; topsoil - friable loam, 9-14 in. thick - 52%, 4-7 in. thick - 14%, subsoil exposed on 4% of the area; subsoil - slowly permeable; slow internal drainage, somewhat poorly drained soil profile; cracks are common in dry weather. Shelby loam - 75%; Shelby clay - 4%; Grundy silt loam - 8%; colluvial material - 13%.**EROSION:** 1 - 39%; 2 - 44%; 3 - 4%; + - 13%.**LAND CAPABILITY:** III - 80%; IV - 20%.**SURFACE DRAINAGE:** Good; in the fall of 1930, 8 terraces were constructed, total length - 5050 ft., vertical interval - 5 ft., uniform grade - 3"/100'. Terraces divert water to outlet channel along east boundary of watershed.**CHARACTER OF FLOW:** Ephemeral, continuous.**INSTRUMENTATION:** Runoff - 3 ft. reinforced concrete Parshall flume, Bristol float and Bristol pressure recorder prior to 1938, Bristol float and Friez F.W.-1 recorder thereafter. Precipitation - Friez recorder #2 prior to 1936, standard gages #2 and #9 thereafter.**WATERSHED CONDITIONS:** This area was cropped continuously for 35 to 40 years prior to 1930 when it was established as a watershed. In the fall of 1930 the gullies were plowed in and 8 terraces were built - total length 5050 ft., grade 3"/100'. Good grassed waterways on 0.22 acres of the 8.03 acre watershed were not established until the summer of 1935. Beginning in 1930 an oats, wheat, meadow, corn rotation was followed. Average or better crops were harvested in all years except in 1939 when the wheat made 9.5 bu/ac and in 1941 when the corn made 12.0 bu/ac.**GENERALLY REPRESENTS:** Cultivated land in the Iowa-Missouri Heavy Till with some Loess Cappings and the Mixed Loess and Till **Prairies** areas which occur largely in northcentral Missouri and south-central Iowa, and to a lesser extent in southeastern Nebraska and northeastern Kansas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and the Missouri Agricultural Experiment Station

## Bethany, Mo., Watershed D-2

[illegible]

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1934. Normal P based on 65 year record (1890-1954) at Bethany, Mo. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: Good, except for winter months, which is fair.



12-55

BETHANY, MISSOURI

Watershed D-3

LOCATION: Harrison Co., Mo.; 9 mi. W. of Bethany; Big Creek Watershed, Grand River Basin.

AREA: 4.85 ac. prior to 5/11/34; SHAPE: Ovate leaf; 650 ft. long, 420 ft. wide.  
4.48 ac. thereafter.

SLOPES: 15% is in 0-5% class; 60% in 5-9%; 20% in 9-14%; 5% in 14-20%. Aspect SE.

SOILS: Glacial - 80%, loessial - 20%; topsoil - friable loam 9-12 in. thick - 87%, 4-6 in. thick - 13%; subsoil - slowly permeable; slow internal drainage, somewhat poorly drained soil profile; cracks are common in dry weather. Shelby loam - 72%; Grundy silt loam - 20%; colluvial material - 8%.

EROSION: 1 - 79%; 2 - 13%; + - 8%.

LAND CAPABILITY: II - 15%; III - 60%; IV - 25%.

SURFACE DRAINAGE: Good; a well-defined draw, extending from the flume to upper end of watershed, divides area in approximately equal parts. Length of principal watercourse - 660 ft..

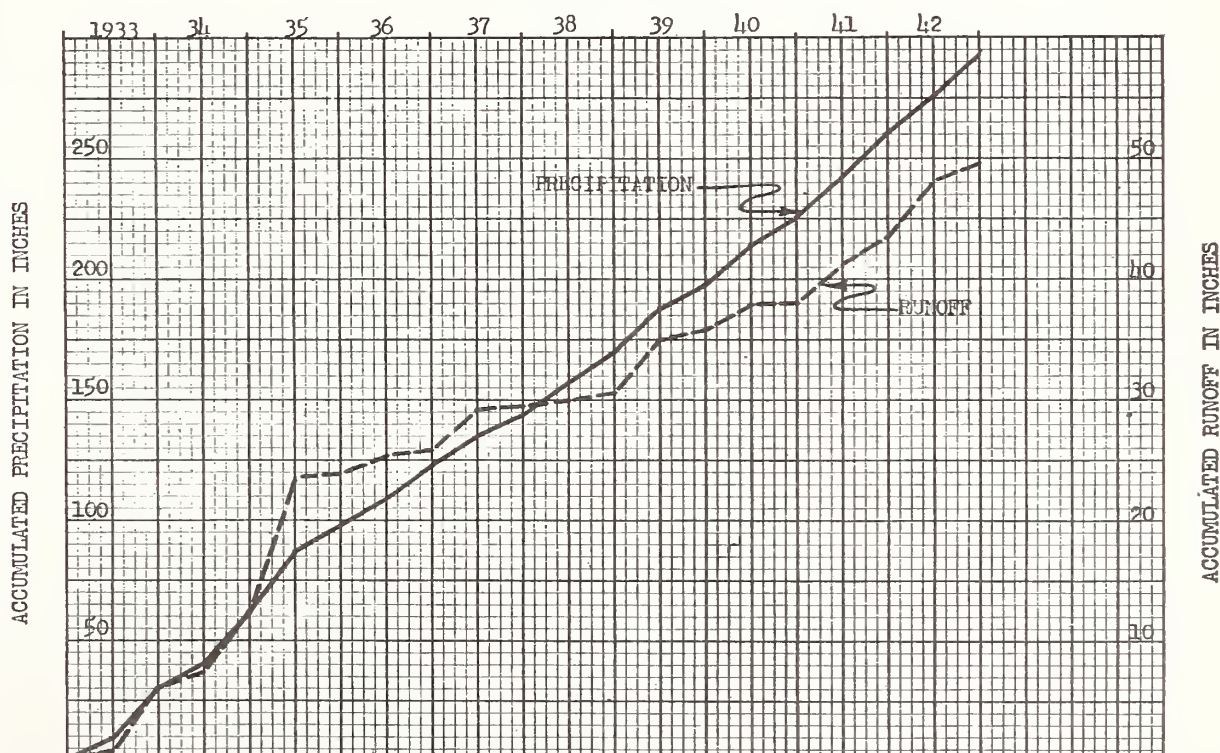
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. sheet metal Parshall flume, Bristol float and Bristol pressure recorder prior to 1938, Bristol float and Friez F.W.-1 thereafter. Precipitation - Friez recorder gage #2 prior to 1936, standard gages #2 and #10 thereafter.

WATERSHED CONDITIONS: This watershed had been farmed only 4 or 5 years and showed little evidence of erosion when it was established as a watershed in 1930. Farming operations were conducted parallel to the field boundaries without regard to the direction of slope. No control measures beyond cropping to a rotation were followed. The rotation from 1933 was corn, corn, oats, meadow. In 1937 rotation was changed to corn, oats, wheat, meadow. Crops were average or above, except for the following years: in 1934 no corn was harvested; in 1939 wheat yield was 9.0 bu/ac; and in 1941 the corn yield was 8.3 bu/ac.

GENERALLY REPRESENTS: Cultivated land in the Iowa-Missouri Heavy Till with some Loess Cappings and the Mixed Loess and Till Prairies areas which occur largely in northcentral Missouri and southcentral Iowa, and to a lesser extent in southeastern Nebraska and northeastern Kansas.

ACCUMULATED PRECIPITATION AND RUNOFF





## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Bethany, Mo., Watershed D-3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932 P							4.94	5.23	2.76	1.73	1.66	1.17	17.49
Q							.17	.07	.06	0	0	.08	.38
1933 P	0.54	0	1.44	0.83	5.05	2.12	3.05	10.78	5.32	.73	.40	1.11	31.37
Q	0	0	0	0	.78	0	.35	2.99	1.90	0	0	T	6.02
1934 P	.67	1.02	.13	4.20	1.65	2.25	.50	3.29	7.41	2.60	7.32	.14	31.18
Q	0	0	.02	.74	.29	.32	0	.08	1.74	.62	2.50	0	6.31
1935 P	1.06	1.01	1.47	2.72	9.51	8.74	.14	.91	5.90	1.54	2.58	.49	36.07
Q	.38	.42	.38	.20	5.74	3.94	0	0	.27	0	.21	0	11.54
1936 P	2.28	.27	.41	1.92	4.57	1.34	.50	1.25	7.60	2.57	.11	1.46	24.28
Q	0	1.41	.01	.01	.07	0	0	0	.22	.20	0	.08	2.00
1937 P	2.88	.64	1.39	3.31	2.83	1.16	5.04	1.03	.48	1.40	.97	.55	21.68
Q	*.39	*1.15	*.96	.52	.28	0	.20	0	0	0	0	0	3.50
1938 P	1.30	.39	1.68	3.00	5.27	1.25	2.71	6.48	.74	.31	2.30	.79	26.22
Q	0	0	0	.08	.50	0	.01	.64	0	0	0	0	1.23
1939 P	.60	.66	2.70	3.04	.75	9.61	2.69	2.80	.37	1.16	1.99	.72	27.09
Q	0	0	.60	.24	0	3.54	.68	.16	0	0	.01	0	5.23
1940 P	1.02	1.19	2.02	2.58	2.80	6.58	2.05	4.21	.46	1.40	2.42	1.44	28.17
Q	0	0	.83	0	.14	1.18	0	.02	0	0	0	0	2.17
1941 P	2.87	.44	.50	2.35	4.59	5.58	.90	1.46	4.59	8.66	.88	1.99	34.81
Q	0	.10	0	T	.97	2.28	0	0	.02	1.89	.07	.37	5.70
1942 P	.23	2.60	2.14	1.37	4.68	4.34	2.14	3.67	5.85	2.71	1.76	1.71	33.20
Q	0	*1.45	.77	0	1.49	.61	.20	.62	.14	.39	.05	.17	5.89
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**Av. P	1.34	.82	1.39	2.53	4.17	4.30	1.97	3.59	3.87	2.31	2.07	1.04	29.40
**Av. Q	.08	.45	.36	.18	1.03	1.19	.14	.45	.43	.31	.28	.06	4.96
Normal P	1.28	1.29	2.21	3.18	4.29	5.29	3.57	4.05	3.86	2.35	1.86	1.30	34.53

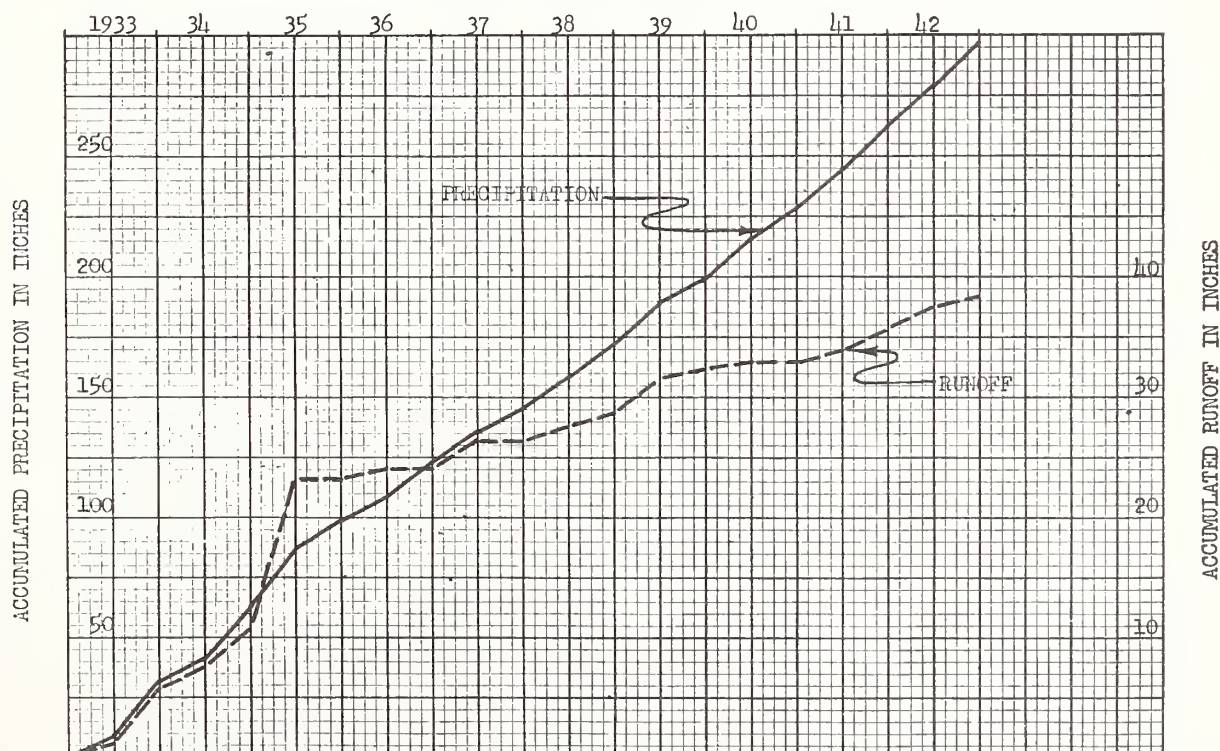
Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1932. Normal P based on 65 year record (1890-1954) at Bethany, Mo. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: Good, except for winter months, which is fair.

12-55

BETHANY, MISSOURI Watershed 1-58

LOCATION: Harrison Co., Mo.; 9 mi. W. of Bethany; Big Creek Watershed, Grand River Basin.AREA: 2.12 ac.SHAPE: About 320 ft. square with funnel outlet.SLOPES: 5% is in 0-5% class; 30% in 5-9%; 60% in 9-14%; 5% in 14-20%. Aspect NE.SOILS: Glacial; topsoil - friable loam, moderate very fine crumb structure, 9-12 in. thick; subsoil - moderately slow permeability; slow internal drainage and a moderately well-drained soil profile; cracks are common in dry weather. Shelby loam - 81%; colluvial material - 19%.EROSION: 1 - 81%; + - 19%.LAND CAPABILITY: III - 35%; IV - 65%.SURFACE DRAINAGE: Good; central gully extends about half way up area where it forks and loses its identity. Length of principal watercourse - 380 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 2 ft. sheet metal Parshall flume, Bristol float recorder until 1939 and Friez F.W.-1 thereafter. Precipitation - Friez recorder gage #2 until 1936, standard gage #5 thereafter.WATERSHED CONDITIONS: This area had been cropped for only about 4 or 5 years prior to 1930. A small grassed waterway was established on the central drainage. Principal watercourse in sod after 1937. Board checks were placed in the gullied section from 1935 to 1937. All cultivation and seeding operations were performed on the contour. The watershed was in blue grass in 1930, corn in 1931 and in 1932. In the fall of 1932 wheat was planted and plowed under in the spring of 1933 prior to seeding alfalfa with a nurse crop of barley. Alfalfa was continued to the fall of 1937 when it was plowed and an annual rotation of oats and lespedeza began; the oats were removed for grain and a hay crop of lespedeza developed in the later summer following the removal of the small grain crop. Yields were average or above except for the following years: 1933 - .24 T/ac of alfalfa; 1939 - 15.8 bu/ac of oats.GENERALLY REPRESENTS: Cultivated land in the Iowa-Missouri Heavy Till with some Loess Cappings and the Mixed Loess and Till Prairies areas which occur largely in northcentral Missouri and south-central Iowa, and to a lesser extent in southeastern Nebraska and northeastern Kansas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and the Missouri Agricultural Experiment Station

Bethany, Mo., Watershed I-58

[illegible]

Notes: \* Partially estimated. Normal P based on 65 year record (1890-1954) at Bethany, Mo., Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: Good, except for winter months, which is fair.

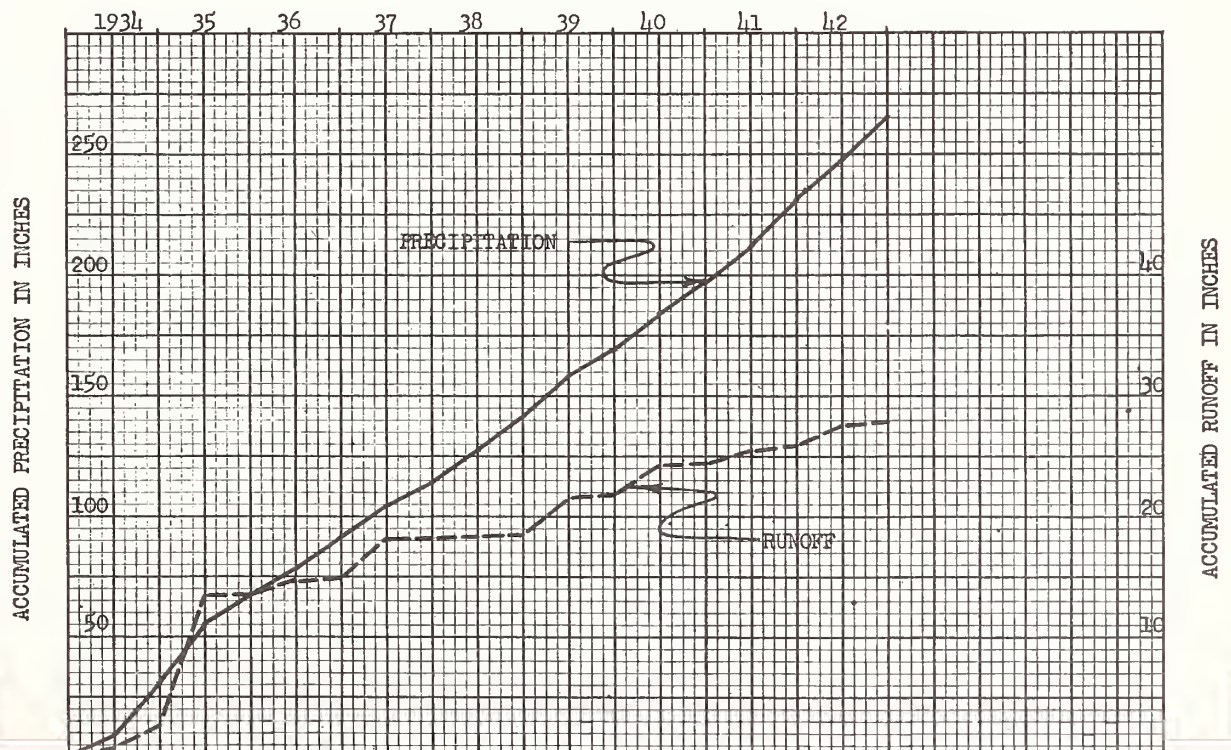


12-55

BETHANY, MISSOURI Watershed IV-1

LOCATION: Harrison Co., Mo.; 9 mi. W. of Bethany; Big Creek Watershed, Grand River Basin.AREA: 2.13 ac.SHAPE: Irregular pentagon, sides 200', 220', 300', 200' and 250'.SLOPES: 15% is in 5-9% class; 80% in 9-14%; 5% in 14-20%. Aspect E.SOILS: Glacial; topsoil - friable loam, moderate very fine crumb structure, 9-12 in. thick - 87%, 4-7 in. thick - 13%; subsoil - moderately slow permeability; slow internal drainage and a moderately well-drained soil profile; cracks are common in dry weather. Shelby loam - 77%; colluvial material - 23%.EROSION: 1 - 64%; 2 - 13%; + - 23%.LAND CAPABILITY: III - 15%; IV - 85%.SURFACE DRAINAGE: Good; main drainage unsymmetrical to area with about two-thirds of area on north side of draw. Length of principal watercourse - 370 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 2 ft. sheet metal Parshall flume, Bristol float recorder prior to 12/28/38, Friez F.W.-1 thereafter. Precipitation - Friez recorder gage #2 prior to 1936, standard gage #5 thereafter.WATERSHED CONDITIONS: This area was native grass pasture prior to 1933. The field was cropped in four strips of corn, soybeans, wheat and meadow from 1933 to 1936. The strips were of equal width during 1933 and parallel to a terrace which formed the upper boundary of the watershed. This resulted in wide deviation of parts of the lower strips from the contour. The strips were relocated for the 1934 crop year in such a way that each strip was on the true contour. The rotation was changed to corn, oats, meadow in 1936, and a small strip at the bottom was returned to permanent hay. Principal watercourse in sod after 1936. Yields were average or above except for the following: corn was poor in 1934, 1935, 1936, 1938 and 1941; oats were poor in 1939.GENERALLY REPRESENTS: Cultivated land in the Iowa-Missouri Heavy Till with some Loess Cappings and the Mixed Loess and Till Prairies areas which occur largely in northcentral Missouri and south-central Iowa, and to a lesser extent in southeastern Nebraska and northeastern Kansas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and the Missouri Agricultural Experiment Station

Bethany, Mo., Watershed IJ-1

<div>Month Year</div>	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1933 P Q							3.05 .67	10.78 2.61	5.32 1.82	.73 0	.40 0	1.11 T	21.39 5.10
1934 P Q	.67 0	1.02 0	.13 .05	4.20 .84	1.65 .02	2.25 .02	.50 0	3.29 T	7.41 .57	2.60 .13	7.32 .93	.14 0	31.18 2.56
1935 P Q	1.06 .13	1.01 .30	1.47 .44	2.72 .32	9.51 5.50	8.74 4.16	.14 0	.91 0	5.90 T	1.54 0	2.58 .06	.49 0	36.07 10.91
1936 P Q	2.28 0	.27 1.03	.41 0	1.92 0	4.70 .07	1.37 0	.55 0	1.26 0	7.69 .16	2.57 .09	.12 0	1.59 .07	24.73 1.42
1937 P Q	2.88 * .16	.64 * .86	1.39 *1.36	3.52 .38	2.76 .40	1.17 0	5.19 .01	1.03 0	.46 0	1.41 0	1.01 0	.55 0	22.01 3.17
1938 P Q	1.30 0	.39 0	1.72 0	3.13 T	5.50 .22	1.26 0	2.73 0	6.59 .27	.70 0	.32 0	2.31 0	.87 0	25.82 .49
1939 P Q	.60 0	.66 0	2.80 .20	2.98 .23	.73 0	9.97 2.71	2.70 .28	2.92 0	.35 0	1.21 0	2.03 0	.74 0	27.69 3.42
1940 P Q	1.02 0	1.19 0	2.00 1.35	2.52 0	2.72 .03	6.64 .79	2.06 0	4.23 .02	.46 0	1.46 0	2.43 0	1.44 0	28.17 2.19
1941 P Q	2.78 0	.44 .16	.50 0	2.46 .07	4.54 .06	5.57 .93	.93 0	1.44 0	4.65 0	8.68 .38	.97 .09	2.16 .08	35.12 1.77
1942 P Q	.23 0	2.64 *1.03	2.18 .42	1.50 0	4.75 .21	4.36 .10	2.20 0	3.76 0	5.83 .08	2.84 .04	1.88 .03	1.75 .07	33.92 1.98
P Q													
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**Av. P **Av. Q	1.42 .03	.92 .38	1.40 .42	2.77 .20	4.10 .72	4.59 .97	1.89 .03	2.83 .03	3.72 .09	2.51 .07	2.29 .12	1.08 .02	29.52 3.08
Normal P	1.28	1.29	2.21	3.13	4.29	5.29	3.57	4.05	3.86	2.35	1.86	1.30	34.53

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1933. Normal P based on 65 year record (1890-1954) at Bethany, Mo. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: Good, except for winter months, which is fair.



10-56

McCREDIE, MISSOURI Station Reservoir Watershed

LOCATION: Callaway Co., Mo.; 1 mi. S. E. of McCredie; Crows Fork Creek, Aux Vesse Watershed, Missouri River Basin.

AREA: 153 ac.

SHAPE: Triangular; about 1 mi. long,  $\frac{1}{2}$  mi. base.

SLOPES: 32% is in 0-2% class; 57% in 2-5%; 8% in 5-9%; 3% above 9%. Aspect E-SE.

SOILS: Loessial - 77%; glacial - 23%. Topsoil:- silt loam texture, fine crumb structure, 92% is over 6 in. thick and 8% is 0-6 in. thick. Permeability of subsoil - 77% is very slow and 23% is slow. Internal drainage - 77% is very slow and 23% is slow. Mexico silt loam - 89%; Lindley like silt loam 11%.

EROSION: 1 - 97%; 2 - 3%.

LAND CAPABILITY: III - 97%; IV - 2%; VI - 1%.

SURFACE DRAINAGE: Good; length of principal waterway - 3400 ft.

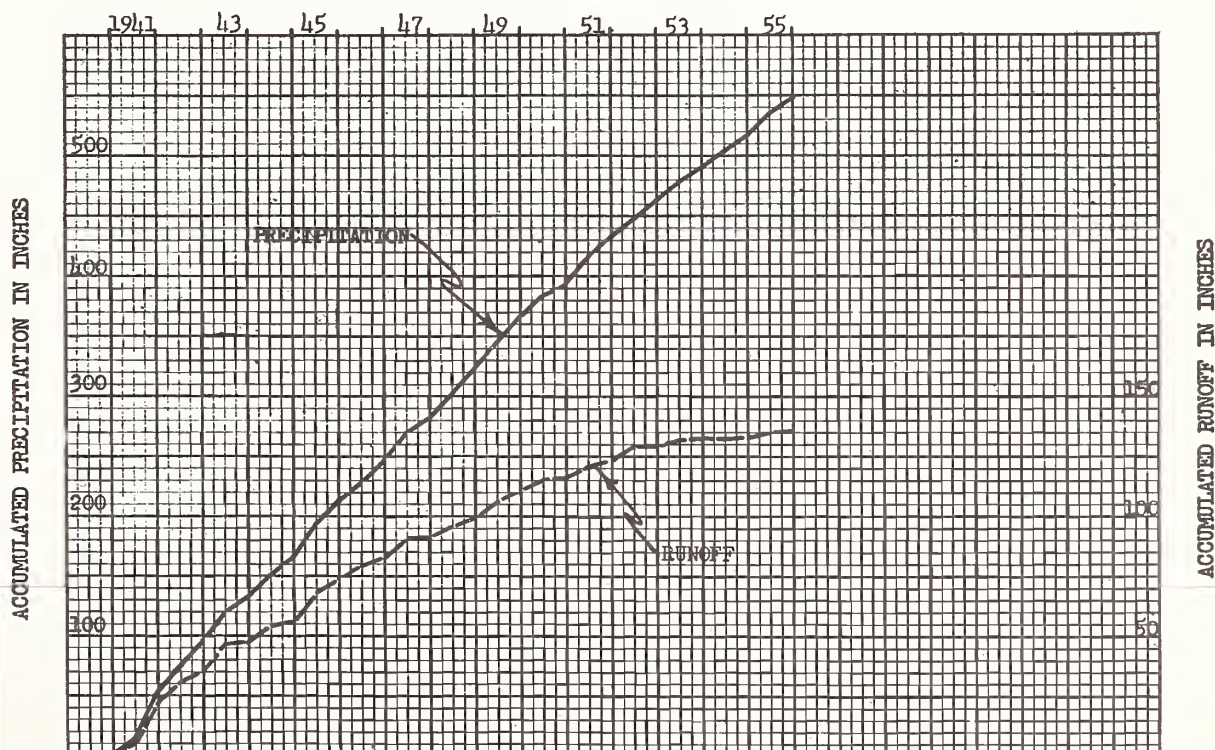
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - FW-1 recorder on reservoir; control - reinforced concrete drop inlet  $2\frac{1}{2} \times 2\frac{1}{2}$ ' (inside) riser with culvert outlet. Precipitation - two recording gages.

WATERSHED CONDITIONS: 1941-46 - 35 ac. - corn, oats, soybean rotation; 5 ac. - soybean, wheat, meadow rotation; 18 ac. - pasture plots; 86 ac. - unimproved pasture; 9 ac. - misc. roads, farmstead, plots. 1947-54 - 35 ac. - corn, oats, soybean rotation; 30 ac. - corn, soybean, wheat, meadow, meadow rotation; 25 ac. pasture plots; 54 ac. - unimproved pasture; 9 ac. - misc. roads, farmstead, plots. 1955 - 35 ac. corn, 65 ac. corn - contour; 24 ac. - pasture plots  $\frac{1}{2}$  of which are irrigated; 20 ac. - unimproved pasture; 9 ac. - misc., roads, farmstead, plots. Crops were good to excellent except in 1954 when there was no corn and soybeans yielded about 10 bu. per ac.

GENERALLY REPRESENTS: Mixed cover land on the gently rolling or undulating claypan prairie breaking into timbered glacial soils on the rolling slopes, common to the Central Claypan Area of east central Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and the Missouri Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches) McCredie, Missouri, Station Reservoir Watershed**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P	2.83	0.17	0.76	6.70	1.95	4.17	7.22	2.41	6.66	17.76	2.46	1.10	54.19
Q	*1.45	*0	*0	4.19	0	.08	2.27	.01	.25	13.54	1.26	.27	23.32
1942 P	.48	2.62	1.75	2.68	4.56	10.28	2.17	2.48	4.33	1.95	3.89	4.84	42.03
Q	0	1.54	.46	.69	.13	5.02	0	0	.13	0	.95	4.01	12.93
1943 P	.65	.80	1.78	2.41	11.98	6.22	3.69	1.19	3.16	3.32	1.10	1.72	38.02
Q	0	.11	.32	.03	7.81	3.01	.13	0	0	0	0	0	11.41
1944 P	.46	2.50	3.02	6.12	4.59	.47	1.84	6.56	4.20	1.79	1.44	1.12	34.11
Q	.16	1.34	.88	3.53	.77	0	0	.15	.47	.88	0	0	8.18
1945 P	.89	1.86	5.69	5.42	5.03	7.59	.75	.89	13.24	.85	.94	.57	43.72
Q	.60	1.43	3.41	2.01	1.83	3.25	.03	0	5.89	.01	.09	0	18.55
1946 P	2.22	1.91	2.64	3.00	6.13	1.35	1.72	4.78	1.23	5.95	5.32	1.05	37.30
Q	1.40	.98	.26	2.40	0	0	0	0	.42	3.32	.11	0	8.89
1947 P	.83	.14	3.09	6.57	3.12	7.72	2.90	.29	2.71	3.20	1.22	1.73	33.52
Q	.12	0	1.92	4.21	.02	1.41	.14	0	.01	0	0	.04	7.87
1948 P	1.25	1.36	4.39	.93	3.50	6.92	6.43	4.35	2.05	3.61	3.30	1.27	39.36
Q	.02	.76	2.62	0	.26	1.01	1.60	.39	.01	.08	1.46	0	8.21
1949 P	5.55	2.41	4.67	1.79	3.56	6.00	3.67	4.91	5.06	4.69	.88	3.08	46.27
Q	2.83	.61	3.27	.04	.46	.03	.66	1.12	1.65	.08	1.25	0	12.00
1950 P	2.32	1.66	2.70	3.16	2.09	3.20	2.18	5.13	.81	1.05	1.33	.13	25.76
Q	1.54	.31	1.36	.73	0	.09	0	0	0	0	0	0	4.03
1951 P	1.54	4.13	3.83	2.01	2.83	6.59	2.37	4.27	5.74	3.67	1.68	1.78	40.44
Q	.03	1.61	2.51	.74	.05	.50	.04	0	.89	.84	.89	.15	8.25
1952 P	1.14	1.22	3.48	2.66	2.24	3.48	2.40	4.70	1.24	.22	4.20	1.46	28.44
Q	.61	.80	2.52	2.35	0	0	0	0	0	0	.07	0	6.35
1953 P	1.45	1.01	3.64	2.98	3.77	3.62	1.92	2.09	2.45	2.72	.63	.72	27.00
Q	.07	.04	.90	.40	1.04	.01	.05	0	0	0	.01	0	2.52
1954 P	.70	.73	2.00	3.55	3.57	2.47	.20	5.32	1.92	4.68	1.06	1.56	27.76
Q	0	0	.07	.05	.03	.02	0	0	.01	.32	.02	.04	.56
1955 P	2.02	3.04	1.27	3.05	3.07	4.96	2.78	2.71	3.79	4.51	.63	.17	32.00
Q	.67	.85	.12	.31	.03	.21	.02	.02	.04	.45	.01	0	2.73
P													
Q													
P													
Q													
P													
Q													
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Q													
Av. P	1.62	1.70	2.98	3.54	4.13	5.00	2.82	3.47	3.91	4.00	2.01	1.49	36.67
Av. Q	.63	.69	1.37	1.45	.83	.98	.33	.11	.65	1.30	.41	.30	9.05
Normal P	1.92	1.83	2.92	3.73	4.74	4.86	3.27	3.98	4.40	2.91	2.25	1.82	38.63

**Notes:** \* Partially estimated. Normal P based on 66 year record (1890-1955) at Columbia, Missouri. Months of Jan., Feb., Mar., April and Dec. include snow and snow melt. Quality of records: P - very good; Q - very good.

10-56

McCREDIE, MISSOURI S.W. Pond No. 2 Watershed

LOCATION: Callaway Co., Mo.; 1 mi. S. E. of McCredie; Crows Fork Creek, Aux Vesse Watershed, Missouri River Basin.

AREA: 44.33 ac.

SHAPE: Oval; 1500 ft. wide, 1600 ft. long.

SLOPES: 41% is in 0-2% class; 57% in 2-5%; 2% in 5-9%. Aspect S.E.

SOILS: Loessial - 78%, Glacial - 22%. Topsoil - silt loam texture, fine crumb structure; 99% is over 6 in. thick and 1% is 0-6 in. thick. Permeability of subsoil - 78% is very slow and 22% is slow. Internal drainage - 78% is very slow and 22% is slow. Mexico silt loam - 78%, Lindley silt loam - 22%.

EROSION: 1 - 99%; 2 - 1%.

LAND CAPABILITY: III - 99%; IV - 1%.

SURFACE DRAINAGE: Good; 12 terraces, total length 9000 ft., graded approx. 4"/100 ft. drain to terrace outlets. Length of principal waterway 1700 ft.

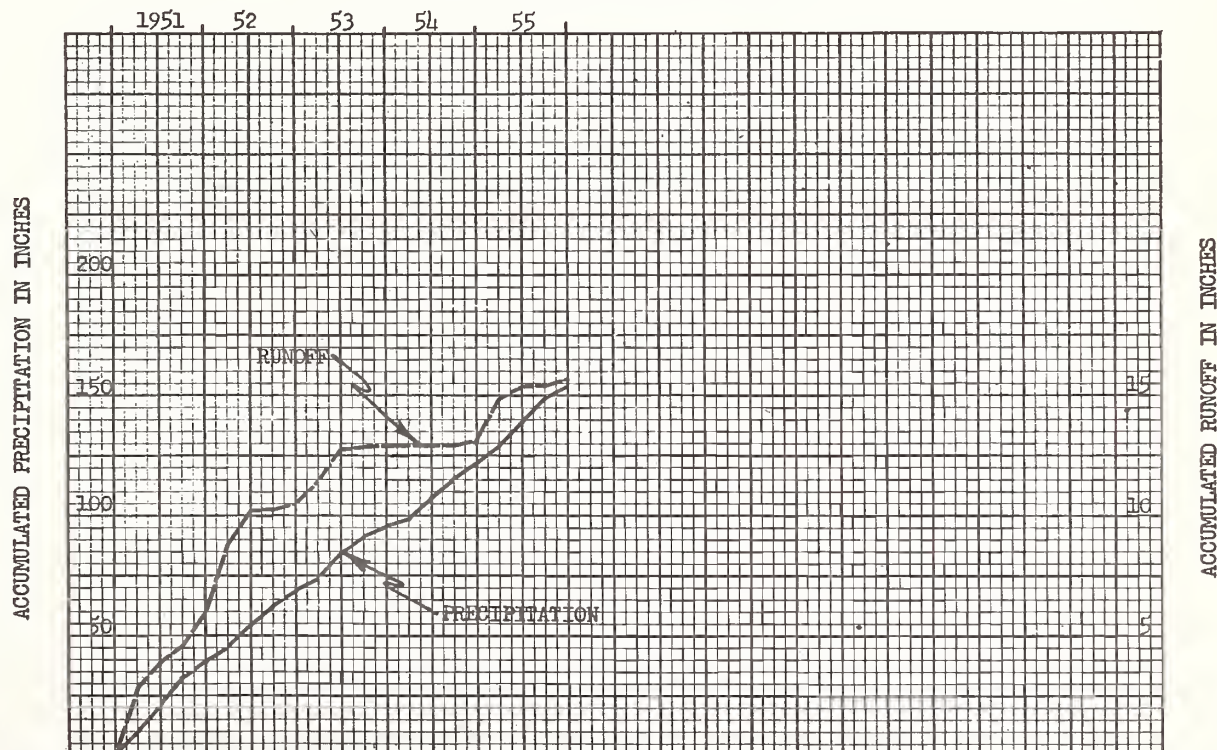
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - FW-1 Recorder on pond; control - 12" C.I.P. tube and auxiliary spillway. Precipitation - recording rain gage.

WATERSHED CONDITIONS: 1951-55: 10 acres - hay, corn, soybeans, wheat, corn; 9 acres - wheat, hay, hay, soybeans; 9 acres - corn-wheat, corn-wheat, corn-wheat, corn-wheat, corn; 9 acres - misc. grasses; 6 acres pasture - off station; 1.33 acres - roads, etc. Crops were good to excellent except in 1954, when there was no corn on the 9 acres and from 1951-55 the pasture was poor on the 6 acres off station.

GENERALLY REPRESENTS: Mixed cover land on the gently rolling or undulating claypan prairie breaking into timbered glacial soils on the rolling slopes, common to the Central Claypan Area of east central Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and the Missouri Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches) McCredie, Missouri S. W. Pond No. 2**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1951 P	1.50	4.23	3.76	1.97	2.81	6.46	2.33	4.29	5.74	3.68	1.60	1.74	40.11
Q	* .02	.99	1.72	.83	.05	.32	.04	.03	.57	.64	.66	.10	5.97
1952 P	1.11	1.22	3.30	2.64	2.23	3.42	2.45	4.79	1.27	.22	4.07	1.41	28.13
Q	.46	.66	1.70	1.34	.02	.06	0	.02	.01	0	.13	.10	4.50
1953 P	1.42	.97	3.61	2.99	3.86	3.56	2.00	2.13	2.40	2.81	.59	.72	27.06
Q	.10	.03	.88	.47	.79	.03	.06	.01	.01	0	0	0	2.38
1954 P	.66	.74	1.84	3.51	3.49	2.37	.18	5.25	1.85	4.61	1.11	1.62	27.23
Q	0	0	.02	.03	.02	.01	0	0	0	.10	.01	.01	.20
1955 P	1.97	3.01	1.24	2.95	3.01	4.83	2.87	2.75	3.93	4.44	.63	.17	31.80
Q	.77	.91	.11	.29	.03	.23	.07	.02	.01	.03	.01	0	2.48
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Av. P	1.33	2.03	2.75	2.81	3.08	4.13	1.97	3.84	3.04	3.15	1.60	1.13	30.86
Av. Q	.27	.52	.89	.59	.18	.13	.03	.02	.12	.15	.16	.04	3.10
Normal P	1.92	1.83	2.92	3.73	4.74	4.86	3.27	3.98	4.40	2.91	2.25	1.82	38.63

**Notes:** \* Partially estimated. Normal P based on 66 yr. record (1890-1955) at Columbia, Missouri.  
Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - very good; Q - very good.



LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 1.26 ac.

SHAPE: Roughly rectangular, 150 ft. wide by 370 ft. long.

SLOPES: 20% is in 12-18% class; 80% in 18-25%. Aspect E.

SOILS: Residual; developed from sandstone and shale; topsoil - silt loam texture bordering on loam, crumb structure, depth 8 in.; subsoil - moderately rapid permeability, internal drainage - rapid, no impeding layer. Muskingum silt loam - 95%; Keene silt loam - 5%.

EROSION: 1 - 50%; 2 - 50%.

LAND CAPABILITY: III - 20%; IV - 80%.

SURFACE DRAINAGE: Good; principal waterway - 430 ft.; a natural watershed on uniform slope without gullies or other marked drainage pattern; earth dike boundary.

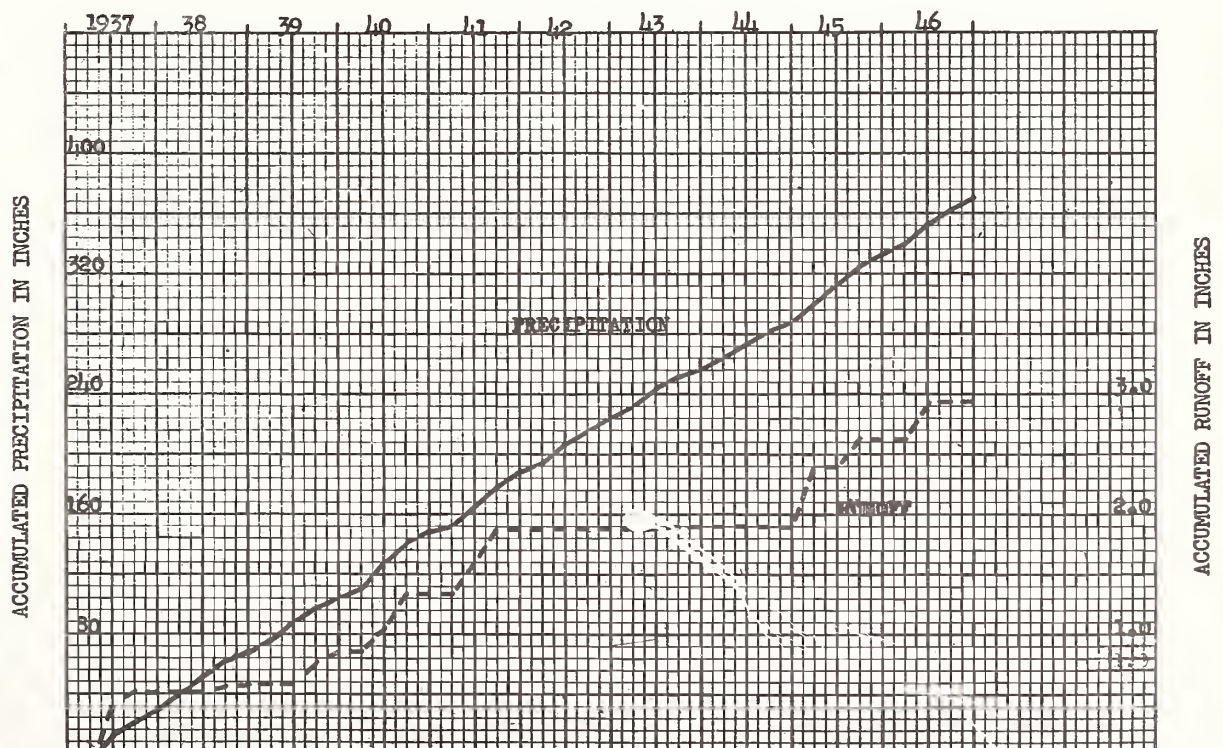
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete Parshall flume, 1 ft. wide, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Poverty grass cover pastured under prevailing practices; no fertilizer or lime applied; fairly extensive grazing during growing season by sheep, cattle, or horses; compare with watershed 104 in improved practices.

GENERALLY REPRESENTS: Prevailing practice on permanent pasture areas of Muskingum and Keene silt loam soils with rapid internal drainage, good surface drainage, slight to moderate erosion, found on hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

## Coshocton, Ohio Watershed 102

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1937. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P = good; Q = good.



LOCATION: Coshocoton Co., Ohio; 10 mi. NE of Coshocoton; Walhonding River, Muskingum River Basin.

AREA: 1.33 ac.°

SHAPE: Roughly fan shape; 380 ft. radius; length of arc = 250 ft.

SLOPES: 20% is in 12-18% class; 80% in 18-25%. Aspect E.

SOILS: Residual; developed from sandstone; topsoil - silt loam texture bordering on loam, crumb structure, depth 8 in.; subsoil - moderately rapid permeability, internal drainage - rapid, no impeding layer. Muskingum silt loam - 100%.

EROSION: 1 - 50%; 2 - 50%.

LAND CAPABILITY: III - 20%; IV - 80%.

SURFACE DRAINAGE: Good; principal waterway = 450 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

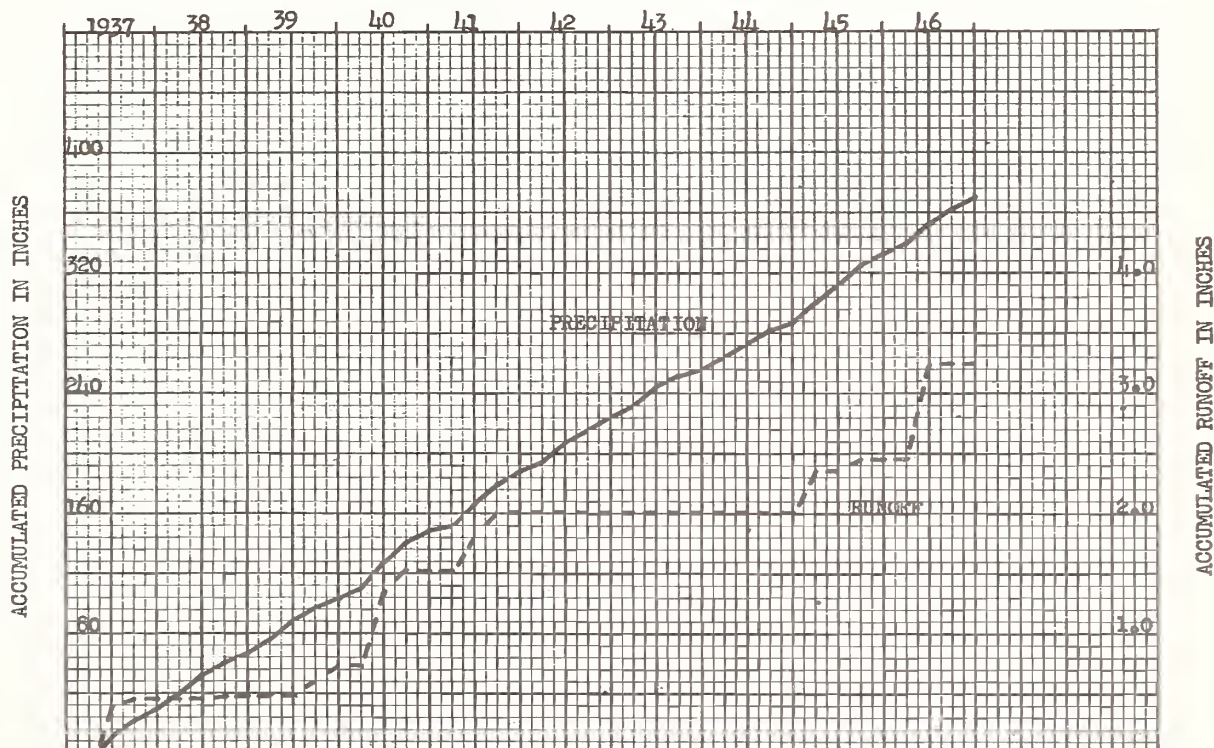
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete Parshall flume, 1 ft. wide, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Pasture; poverty grass to 1940; bluegrass and clover thereafter; no winter grazing; 3 tons per acre lime, 4 tons per acre manure and 750 lbs. 0-14-6 at reseeding in 1940 with additional manure used in 1944; compare with watershed 102 in prevailing practice.

GENERALLY REPRESENTS: Improved practice on shallow rooted permanent pasture areas of Muskingum silt loam with rapid internal drainage, good surface drainage, slight to moderate erosion, found on hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



Coshocton, Ohio Watershed 10

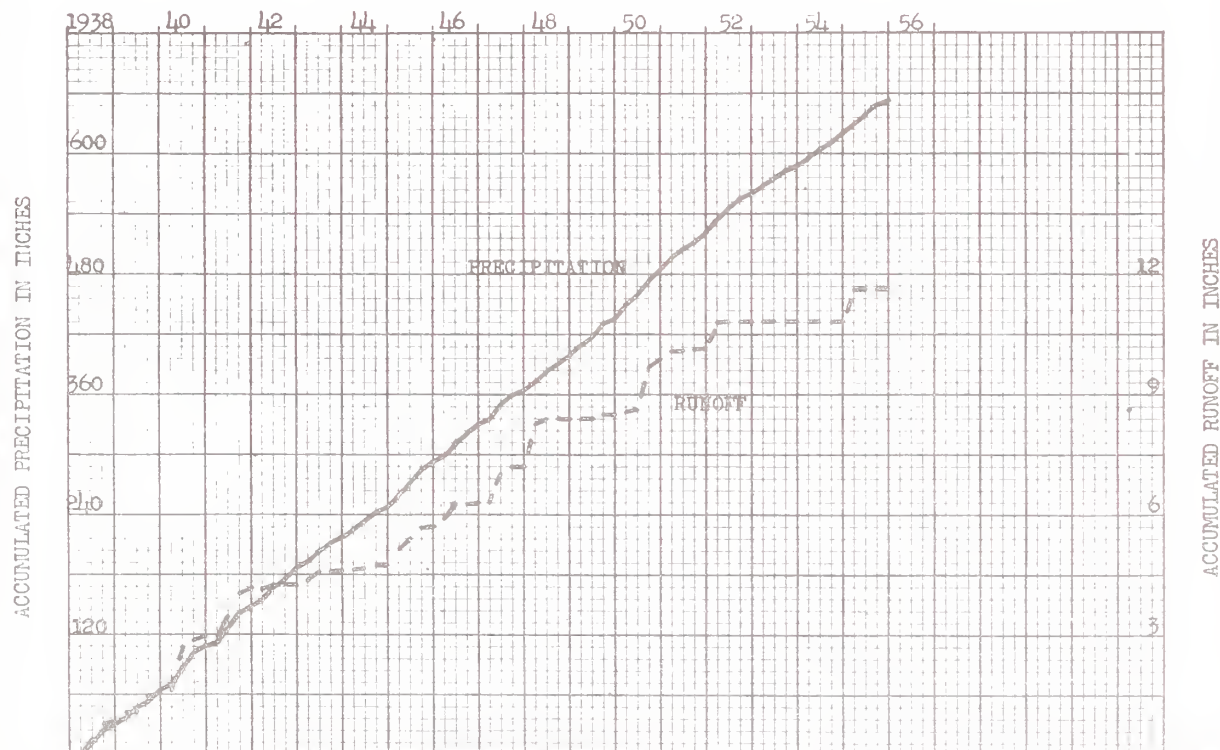
**Av. P	1.31	2.25	4.16	3.06	4.72	5.23	4.15	3.49	2.46	2.76	2.25	2.00	37.84
**Av. Q	T	T	.04	.01	.02	.15	.04	.02	.01	.01	0	0	.30
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1937. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - good; Q - good.

1-56

COSHOOTON, OHIO Watershed 129LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.AREA: 2.71 ao.SHAPE: Roughly triangular, base = 320 ft., height = 450 ft.SLOPES: 16% is in 12-18% class; 65% in 18-25%; 19% in 25-35%. Aspect SE.SOILS: Residual; developed from sandstone; topsoil - silt loam to loam texture, moderate fine crumb structure, 7-8 in. deep; subsoil - moderately rapid permeability, rapid internal drainage, no impeding layer. Muskingum loam - 49%; Muskingum silt loam - 46%; Keene silt loam (shallow phase) - 5%.EROSION: 2 - 100%.LAND CAPABILITY: III - 16%; IV - 65%; VI - 19%.SURFACE DRAINAGE: Good; length of principal waterway = 520 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - concrete Parshall flume, 1 ft. wide, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Improved pasture; timothy and bluegrass to 1948; alfalfa and brome grass since; no winter grazing. This watershed along with Watersheds 130 and 135 lie within the north and west boundary of Watershed 177.GENERALLY REPRESENTS: Improved practice on permanent pasture areas of Muskingum silt loams, and loams with rapid internal drainage, good surface drainage, moderate erosion, found on hilly to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshooton, Ohio Watershed 129

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q				3.90 .08	5.09 .30	4.00 .04	3.52 .08	3.47 .22	2.86 .04	0.63 0	2.75 .06	0.97 .01	27.19 .83
1939 P Q	1.95 .03	4.27 .12	3.68 .05	4.05 .05	1.15 T	6.34 .03	6.27 .33	1.32 0	1.09 0	4.18 .11	.55 0	1.35 T	36.20 .72
1940 P Q	1.13 T	2.61 .03	3.30 .02	4.80 .33	4.72 .16	8.18 .61	4.07 .05	7.49 .12	1.97 T	1.09 0	3.71 .03	3.08 .04	46.15 1.39
1941 P Q	1.67 0	.44 0	1.13 T	.97 0	7.14 .19	6.50 .31	6.09 .50	4.93 .12	1.40 T	5.45 .04	1.41 .03	1.57 .01	38.70 1.20
1942 P Q	1.32 0	1.82 0	3.65 .02	1.92 .02	5.11 .01	6.30 .06	2.31 .01	2.85 0	2.52 0	2.41 0	2.57 0	*3.88 T	36.66 .12
1943 P Q	1.82 0	1.67 0	*3.99 .09	2.73 0	6.77 .22	2.56 0	4.14 0	3.43 0	.42 0	1.90 0	1.52 0	.85 .01	31.80 .32
1944 P Q	.89 0	1.33 0	5.54 .04	3.48 .04	2.11 0	3.45 T	2.30 T	4.47 .08	1.81 0	1.77 0	.96 0	2.68 0	30.79 .16
1945 P Q	1.17 0	2.38 .18	8.39 .25	4.42 .02	4.74 .13	3.70 .09	2.77 .01	1.07 T	9.51 .26	2.74 .01	3.35 .01	1.35 0	45.59 .96
1946 P Q	.63 0	3.64 .20	2.15 .01	1.57 0	5.50 0	6.43 .34	5.17 .01	2.24 0	.69 0	4.03 .01	2.36 T	1.87 0	36.28 .57
1947 P Q	4.84 .02	.36 0	.74 0	3.96 0	5.76 .27	5.45 .46	2.48 T	3.34 .20	2.71 0	.84 0	2.45 0	1.18 0	34.11 .95
1948 P Q	1.91 .03	2.78 1.02	4.43 T	3.35 .11	4.39 .01	3.50 .01	.81 .01	3.48 0	2.58 0	2.74 0	2.83 0	2.02 0	34.82 1.19
1949 P Q	4.79 T	2.61 0	3.42 0	2.68 0	2.87 0	2.90 0	7.67 .10	2.48 .01	3.23 0	.88 0	1.21 0	2.41 0	37.15 .11
1950 P Q	8.18 .04	3.50 .01	2.24 0	3.82 .01	4.08 .06	1.78 0	6.49 0	2.41 .02	5.26 1.01	1.37 0	5.71 T	2.56 .21	47.40 1.36
1951 P Q	4.53 .16	3.23 .05	4.85 .02	3.12 0	2.27 0	5.42 .01	2.78 .02	.63 0	3.04 0	1.87 0	4.62 0	4.25 .01	40.61 .27
1952 P Q	6.12 .58	2.53 .04	3.34 .04	4.13 0	4.12 0	2.68 .02	3.95 0	1.89 0	2.60 0	.78 0	1.75 0	2.20 0	36.09 .68
1953 P Q	4.83 T	1.18 0	2.75 0	2.31 0	4.27 T	2.29 0	5.05 0	1.48 0	1.04 0	.60 0	.99 0	2.19 0	28.98 T
1954 P Q	2.28 T	1.86 0	3.77 0	3.09 0	2.13 0	2.09 0	3.45 0	3.36 0	1.19 0	5.96 0	1.26 0	2.42 0	32.86 T
1955 P Q P Q P Q	1.12 0	3.41 .69	4.68 .11	3.63 0	1.59 0	2.66 0	3.91 0	3.25 0	2.29 0	2.00 0	3.19 0	.24 0	31.97 .80
**Av. P **Av. Q	2.89 .05	2.33 .14	3.65 .04	3.18 .03	4.04 .06	4.25 .11	4.10 .06	2.95 .03	2.55 .07	2.39 .01	2.38 T	2.12 .02	36.83 .62
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

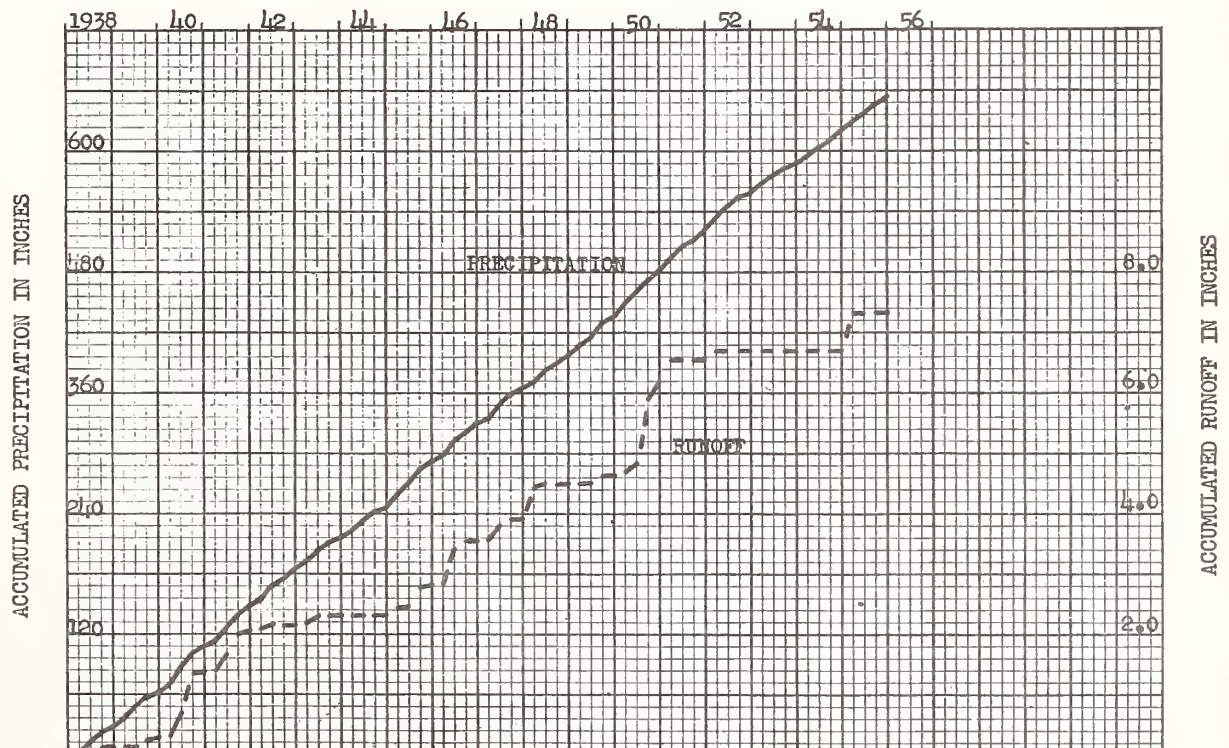
Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1938. Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio. Quality of records: P - excellent; Q - good.



1-56

COSHOCTON, OHIO Watershed 135LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.AREA: 2.69 ac.SHAPE: Roughly triangular, base - 510 ft., height - 360 ft.SLOPES: 57% is in 12-18% class; 36% in 18-25%; 7% in 25-35%. Aspect S.SOILS: Residual; developed from shale and sandstone; topsoil - silt loam to loam texture, moderate fine crumb structure, 7-8 in. deep; subsoil - moderately slow permeability, rapid internal drainage, no impeding layer. Keene silt loam - 42%; Muskingum silt loam - 34%; Muskingum loam - 24%.EROSION: 2 - 100%.LAND CAPABILITY: III - 57%; IV - 36%; VI - 7%.SURFACE DRAINAGE: Good; length of principal waterway - 540 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - concrete Parshall flume, 1 ft. wide, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Prevailing practice on unimproved pasture; timothy and poverty grass; no winter grazing. This watershed along with Watersheds 129 and 130 lie within the north and west boundary of Watershed 177.GENERALLY REPRESENTS: Prevailing practice on permanent pasture areas of Keene and Muskingum silt loams and Muskingum loams with rapid internal drainage, good surface drainage, moderate erosion, found on hilly to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      **Coshooton, Ohio Watershed 135**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q				3.90 0	5.09 .01	4.00 .02	3.52 .01	3.47 .04	2.86 0	0.63 0	2.75 T	0.97 0	27.19 .08
1939 P Q	1.95 T	4.27 .01	3.68 T	4.05 .01	1.15 0	6.34 T	6.27 .14	1.32 0	1.09 0	4.18 .03	.55 0	1.35 0	36.20 .19
1940 P Q	1.13 T	2.61 .02	3.30 .02	4.80 .05	4.72 .01	8.18 .31	4.07 .26	7.49 .40	1.97 0	1.09 0	3.71 .03	3.08 .01	46.15 1.11
1941 P Q	1.67 0	.44 0	1.13 0	.97 0	7.14 .16	6.50 .12	6.09 .28	4.93 .07	1.40 0	5.45 .02	1.41 .02	1.57 .02	38.70 .69
1942 P Q	1.32 0	1.82 0	3.65 .01	1.92 0	5.11 0	6.30 .05	2.31 .01	2.85 0	2.52 0	2.41 0	2.57 0	*3.88 0	36.66 .07
1943 P Q	1.82 0	1.67 0	*3.99 .03	2.73 0	6.77 .11	2.56 T	4.14 0	3.43 0	.42 0	1.90 0	1.52 0	.85 0	31.80 .14
1944 P Q	.89 0	1.33 0	5.54 .01	3.48 .01	2.11 0	3.45 0	2.30 0	4.47 .02	1.81 0	1.77 0	.96 0	2.68 0	30.79 .04
1945 P Q	1.17 0	2.38 .05	8.39 .09	4.42 0	4.74 .02	3.70 0	2.77 0	1.07 0	9.51 .29	2.74 .03	3.35 .01	1.35 .02	45.59 .51
1946 P Q	.63 0	3.64 .01	2.15 0	1.57 0	5.50 0	6.43 .59	5.17 .11	2.24 0	.69 0	4.03 T	2.36 0	1.87 0	36.28 .71
1947 P Q	4.84 .01	.36 0	.74 0	3.96 0	5.76 .06	5.45 .19	2.48 0	3.34 .13	2.71 0	.84 0	2.45 0	1.18 0	34.11 .39
1948 P Q	1.91 T	2.78 .51	4.43 0	3.35 .03	4.39 0	3.50 .02	.81 .01	3.48 0	2.58 0	2.74 0	2.83 0	2.02 0	34.82 .57
1949 P Q	4.79 T	2.61 0	3.42 0	2.68 0	2.87 T	2.90 0	7.67 .07	2.48 .06	3.23 0	.88 0	1.21 0	2.41 0	37.15 .13
1950 P Q	8.18 .07	3.50 0	2.24 0	3.82 0	4.08 .14	1.78 0	6.49 .01	2.41 .10	5.26 .95	1.37 0	5.71 .09	2.56 .23	47.40 1.59
1951 P Q	4.53 .06	3.23 .28	4.85 T	3.12 0	2.27 0	5.42 T	2.78 .01	.63 0	3.04 0	1.87 0	4.62 0	4.25 0	40.61 .35
1952 P Q	6.12 .16	2.53 0	3.34 0	4.13 0	4.12 0	2.68 0	3.95 0	1.89 0	2.60 0	.78 0	1.75 0	2.20 0	36.09 .16
1953 P Q	4.83 0	1.18 0	2.75 0	2.31 0	4.27 0	2.29 0	5.05 0	1.48 0	1.04 0	.60 0	.99 0	2.19 0	28.98 0
1954 P Q	2.28 0	1.86 0	3.77 0	3.09 0	2.13 0	2.09 0	3.45 0	3.36 0	1.19 0	5.96 0	1.26 0	2.42 0	32.86 0
1955 P Q	1.12 0	3.41 .60	4.68 .01	3.63 0	1.59 0	2.66 0	3.91 0	3.25 0	2.29 0	2.00 0	3.19 .01	.24 0	31.97 .62
P Q													
P Q													
**Av. P **Av. Q	2.89 .02	2.33 .09	3.65 .01	3.18 .01	4.04 .03	4.25 .08	4.10 .05	2.95 .05	2.55 .07	2.39 T	2.38 .01	2.12 .02	36.83 .44
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

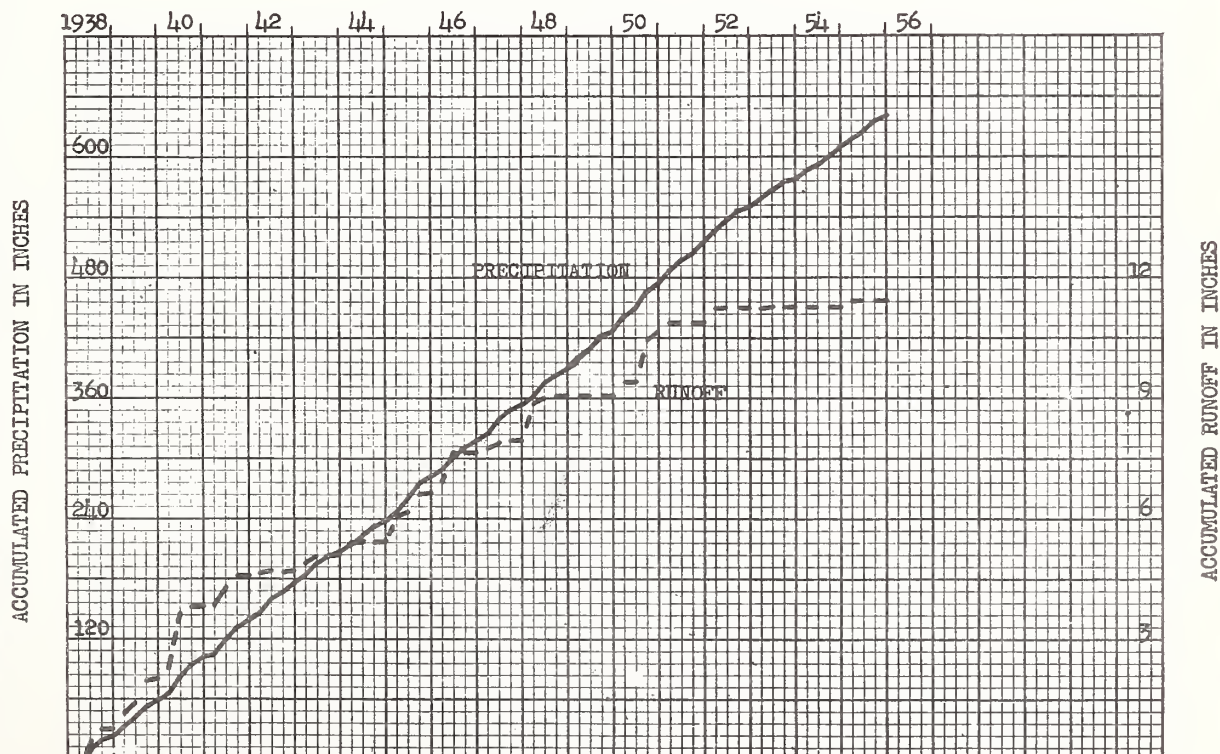
**Notes:** \*Partially estimated. \*\*Does not include the part year amounts for 1938. Normal P based on 48-yr. record (1907-1954) at Coshooton, Ohio. Quality of records: P - excellent; Q - good.



1-56

COSHOCTON, OHIO Watershed 130LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.AREA: 1.63 sq.SHAPE: Roughly triangular, base - 550 ft., height - 240 ft.SLOPES: 22% is in 12-18% class; 53% in 18-25%; 25% in 25-35%. Aspect E.SOILS: Residual; derived from sandstone; topsoil - silt loam to loam texture, moderate fine to medium crumb structure, 7-8 in. deep; subsoil - moderately rapid permeability, rapid internal drainage, no impeding layer. Muskingum silt loam - 71%; Muskingum loam - 29%.EROSION: 2 - 100%.LAND CAPABILITY: III - 22%; IV - 53%; VI - 25%.SURFACE DRAINAGE: Good; length of principal waterway - 570 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - concrete Parshall flume, 0.75 ft. wide, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Meadow; timothy to 1940; alfalfa, clover, and timothy seeded in mulch 1940 and reseeded 1942; mostly timothy by 1952; birdsfoot trefoil and brome grass seeded in mulch 1953. This watershed along with Watersheds 129 and 135 lie within the north and west boundary of Watershed 177.GENERALLY REPRESENTS: Improved practice on meadow areas of Muskingum silt loams and loams with rapid internal drainage, good surface drainage, generally moderate erosion, found on hilly to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshooton, Ohio Watershed 130

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P					5.05	4.00	3.65	3.41	*2.95	0.66	2.76	1.03	23.51
	Q					.25	.14	*.07	.29	T	0	T	0	.75
1939	P	1.56	3.92	3.44	3.78	1.17	6.12	6.22	1.34	1.04	5.14	.51	1.48	35.72
	Q	.09	.16	.17	.20	0	.06	.51	0	0	.06	0	0	1.25
1940	P	1.11	2.39	3.10	4.08	4.41	7.97	4.00	7.47	1.83	1.04	3.53	2.84	43.77
	Q	.02	.11	.15	.62	0	.77	.03	.12	0	0	.01	.03	1.86
1941	P	*1.48	.23	.79	.63	7.06	6.76	5.82	4.94	1.39	5.48	1.44	1.60	37.62
	Q	0	0	0	0	.25	.17	.28	.01	0	0	0	T	.71
1942	P	1.35	1.90	3.59	1.96	4.88	5.55	2.33	2.79	2.52	2.24	2.65	3.56	35.32
	Q	0	0	.09	.02	.01	.01	0	0	0	0	0	.02	.15
1943	P	2.05	1.75	3.75	2.52	6.77	2.51	3.85	3.67	.38	1.65	1.44	.83	31.17
	Q	T	0	.17	0	0	.20	0	0	0	0	0	.04	.41
1944	P	.90	1.26	5.21	3.52	2.25	3.57	2.40	4.67	1.98	1.64	1.07	2.67	31.14
	Q	.11	.18	.02	*.04	0	T	T	T	0	T	0	0	.35
1945	P	1.10	2.31	8.09	4.29	4.74	3.47	2.63	1.07	9.51	2.68	3.38	1.46	44.73
	Q	0	.08	.53	0	.05	0	0	0	.48	.03	0	.01	1.18
1946	P	.67	3.85	2.17	1.44	5.37	5.87	4.83	2.33	.66	4.01	2.47	2.24	35.91
	Q	0	.28	0	0	0	.69	0	0	0	0	0	0	.97
1947	P	5.02	.38	.80	3.65	5.96	5.39	2.49	3.72	2.81	.84	2.50	1.10	34.66
	Q	.12	0	0	0	.09	.05	T	.06	0	0	0	0	.32
1948	P	1.73	2.67	4.33	4.95	3.39	4.34	3.37	.86	3.39	2.69	2.75	2.07	36.54
	Q	0	.96	.02	.09	0	.02	T	0	.02	T	0	0	1.11
1949	P	4.86	2.56	3.57	2.43	2.96	2.84	7.39	2.41	3.33	.86	1.21	2.49	36.91
	Q	.01	0	0	0	0	0	T	0	0	0	0	0	.01
1950	P	8.39	3.44	2.21	3.98	4.04	1.99	6.92	2.35	5.47	1.44	5.91	2.42	48.56
	Q	.35	T	0	.01	T	0	0	0	1.02	0	.01	.20	1.59
1951	P	4.23	3.09	4.58	2.99	2.24	5.48	2.79	.54	2.89	1.79	4.64	3.98	39.24
	Q	.13	.07	.01	0	0	0	0	0	0	0	0	0	.21
1952	P	5.83	2.48	3.17	3.96	4.18	2.72	3.86	1.93	2.57	.78	1.66	2.14	35.28
	Q	.39	0	0	0	0	0	0	0	0	0	0	0	.39
1953	P	4.49	1.15	2.81	2.20	4.06	2.18	5.36	1.53	1.04	.61	.90	2.07	28.40
	Q	0	0	0	0	.02	0	0	0	0	0	0	0	.02
1954	P	2.34	1.71	3.21	2.91	2.10	1.86	3.27	3.19	1.20	5.75	1.30	2.45	31.29
	Q	T	0	0	0	0	0	0	0	0	0	0	0	T
1955	P	1.15	3.00	4.49	3.55	1.60	2.61	3.91	2.99	2.36	2.05	3.07	.22	31.00
	Q	0	.03	.15	T	0	0	0	0	0	0	0	0	.18
	P													
	Q													
	P													
	Q													
**Av. P		2.84	2.24	3.49	3.11	3.95	4.19	4.20	2.81	2.61	2.39	2.38	2.10	36.31
**Av. Q		.07	.11	.08	.06	.02	.12	.05	.01	.09	.01	T	.02	.64
Normal P		3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1938. Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio. Quality of records: P - excellent; Q - good.

11-55

COSHOCTON, OHIO Watershed 107

LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 2.59 ac.

SHAPE: Roughly a right triangle about 550 ft. on base and 250 ft. high.

SLOPES: 37% is in 12-18% class; 57% in 18-25%; 6% in 25-35%. Aspect S.

SOILS: Residual; developed from sandstone and shale; topsoil- silt loam to loam texture, crumb structure, topsoil depth 6-7 in.; subsoil - permeability moderately rapid to slow, internal drainage rapid to medium, no impeding layer. Muskingum loam - 50%; Muskingum silt loam - 10%; Keene (shallow phase) silt loam (formerly Coshocton) - 5%; Keene silt loam - 35%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 37%; IV - 57%; VI - 6%.

SURFACE DRAINAGE: Good; principal waterway - 580 ft.; a natural watershed with steepest slopes in central third and some reduction in slope on upper and lower parts; high yield seep horizon is intercepted by this watershed; earth dike boundary.

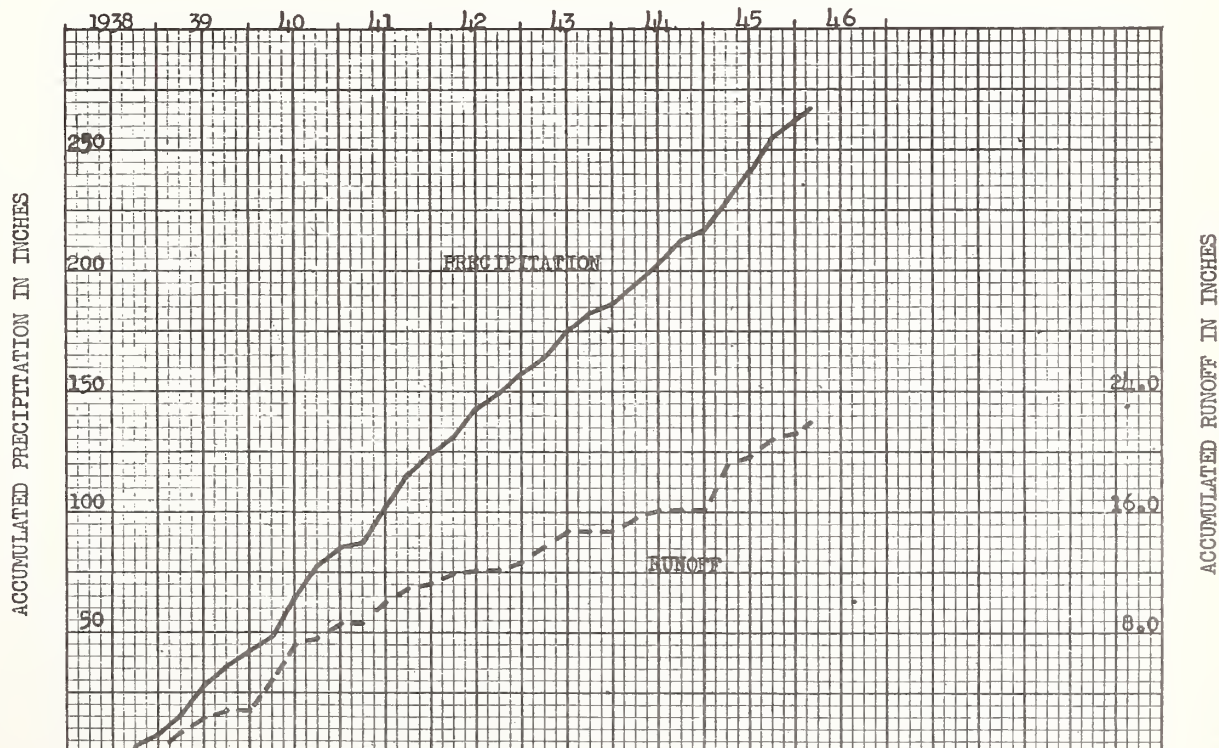
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 2 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Poverty grass to 1939; reforested to pines 1939; complete coverage by 1944; no grazing, burning, or other disturbance after reforestation.

GENERALLY REPRESENTS: Reforested areas of Muskingum loam and Keene, Keene (shallow phase) and Muskingum silt loam soils with rapid to medium internal drainage, good surface drainage, and moderate erosion, found on steeper slopes in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 107

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q									2.82 .01	0.63 0	2.71 .03	1.12 0	7.28 .04
1939 P Q	1.75 .16	3.93 .81	*3.05 .47	3.69 .69	1.67 .01	*6.08 .21	6.32 * .41	1.15 T	1.05 T	4.51 .12	.63 0	1.45 T	35.28 2.88
1940 P Q	1.06 .20	2.03 *1.17	2.94 * .61	4.30 1.38	4.40 .08	7.25 .81	3.56 .07	7.25 .49	2.07 T	1.11 0	3.73 .40	2.82 .54	42.52 5.75
1941 P Q	1.34 .01	.33 * .01	.89 .01	* .98 0	6.78 .69	7.19 .59	5.72 .61	5.97 .47	1.46 T	5.65 .13	1.53 .11	1.79 * .04	39.63 2.67
1942 P Q	1.28 .03	*1.92 .12	3.30 .39	1.80 .10	4.64 .22	4.68 .03	2.52 T	2.41 0	2.58 0	2.06 0	2.49 0	*3.43 .49	33.11 1.38
1943 P Q	1.87 .20	1.28 .10	3.72 .72	2.61 .06	6.51 .91	1.84 T	3.44 T	3.74 .03	.31 0	1.63 .01	1.34 0	.86 0	29.15 2.03
1944 P Q	.91 T	1.31 0	5.30 .95	3.66 .48	2.08 T	3.13 T	2.66 T	4.98 .02	1.85 0	1.61 0	.99 0	2.14 0	30.62 1.45
1945 P Q	.79 0	2.28 .55	8.16 2.41	4.25 .26	4.69 .43	3.69 .01	2.48 0	1.39 0	10.27 1.03	2.36 .12	3.33 .25	1.34 .09	45.03 5.15
1946 P Q	.59 0	3.70 .64											4.29 .64
P													
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**Av. P **Av. Q	1.29 .09	1.87 .39	3.91 .79	3.04 .42	4.40 .33	4.84 .24	3.81 .16	3.84 .14	2.80 .15	2.70 .05	2.01 .11	1.98 .17	36.49 3.04
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1938 and 1946. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - good; Q - good.



1-56

COSHOCKTON, OHIO Watershed 131

LOCATION: Coshockton Co., Ohio; 10 mi. NE of Coshockton; Walhonding River, Muskingum River Basin.

AREA: 2.21 ac.

SHAPE: Roughly elliptical, width - 220 ft., length - 560 ft.

SLOPES: 63% is in 18-25% class; 37% in 25-35%. Aspect W.

SOILS: Residual; derived from sandstone; topsoil - sandy loam, silt loam and loam texture, moderate fine to medium crumb structure, 7-8 in. deep; subsoil - rapid permeability, rapid internal drainage, no impeding layer. Muskingum sandy loam - 54%; Muskingum loam - 30%; Muskingum silt loam - 16%.

EROSION: 1 - 100%.

LAND CAPABILITY: IV - 63%; VI - 37%.

SURFACE DRAINAGE: Good; length of principal waterway - 600 ft.; a natural watershed with surface flow to a well defined waterway near the outlet; earth dike boundary.

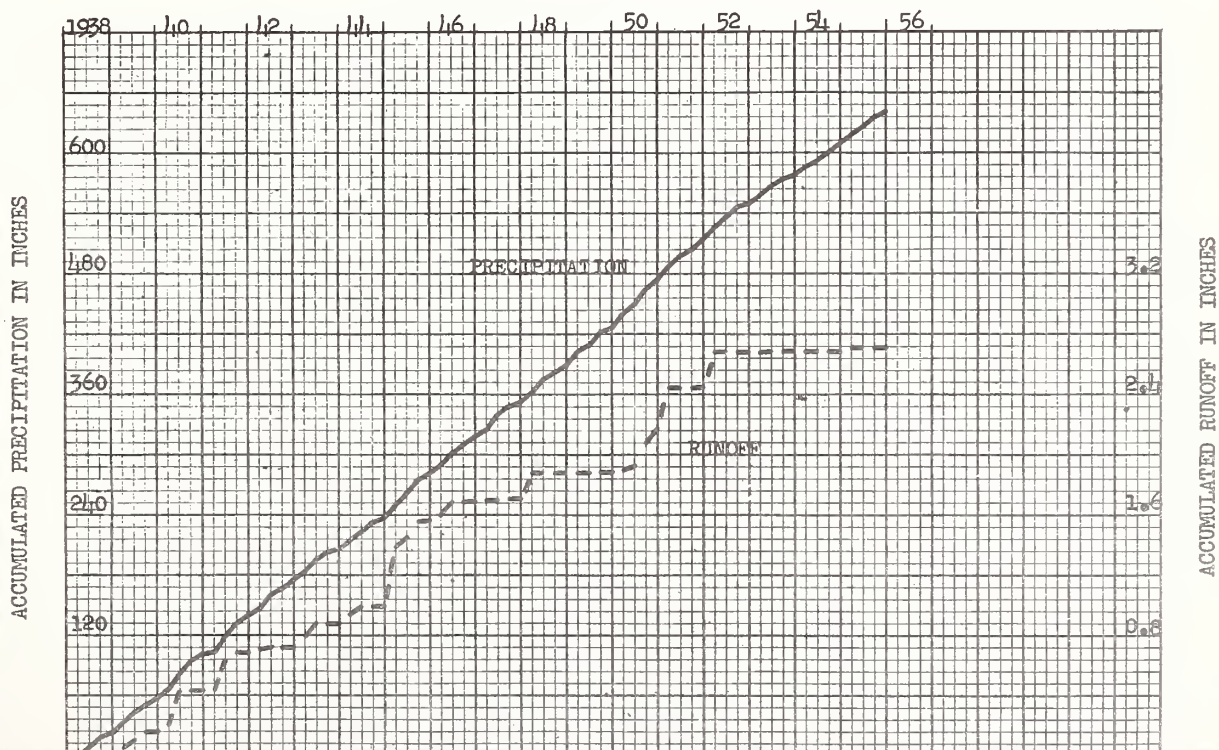
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete Parshall flume, 0.5 ft. wide, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Uneven age stand of hardwoods; good woodland management; no grazing. This watershed and Watershed 132 both lie within the east boundary of Watershed 172.

GENERALLY REPRESENTS: Uneven age stand of hardwoods areas of Muskingum loams with rapid internal drainage, good surface drainage, slight erosion, found on hilly to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Coshocton, Ohio Watershed 131

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q					5.05 T	4.00 T	3.65 T	3.41 T	*2.95 T	0.66 0	2.76 0	1.03 0	23.51 T
1939 P Q	1.56 0	3.92 .02	3.44 .03	3.78 .04	1.17 0	6.12 .01	6.22 .06	1.34 0	1.04 0	5.14 T	.51 0	1.48 0	35.72 .16
1940 P Q	1.11 0	2.39 T	3.10 .05	4.08 .14	4.41 0	7.97 .07	4.00 0	7.47 .01	1.83 T	1.04 0	3.53 T	2.84 0	43.77 .27
1941 P Q	*1.48 0	.23 0	.79 0	.63 0	7.06 .17	6.76 .03	5.82 .06	4.94 T	1.39 T	5.48 T	1.44 T	1.60 0	37.62 .26
1942 P Q	1.35 0	1.90 0	3.59 .02	1.96 T	4.88 .01	5.55 T	2.33 T	2.79 0	2.52 0	2.24 0	2.65 0	3.56 0	35.32 .03
1943 P Q	2.05 0	1.75 0	3.75 .08	2.52 0	6.77 .08	2.51 0	3.85 0	3.67 0	.38 0	1.65 0	1.44 0	.83 T	31.17 .16
1944 P Q	.90 0	1.26 0	5.21 .06	3.52 .05	2.25 0	3.57 0	2.40 T	4.67 T	1.98 T	1.64 T	1.07 0	2.67 0	31.14 .11
1945 P Q	1.10 0	2.31 .01	8.09 .38	4.29 .02	4.74 .05	3.47 0	2.63 0	1.07 0	9.51 .11	2.68 .01	3.38 0	1.46 0	44.73 .58
1946 P Q	.67 0	3.85 .03	2.17 0	1.44 0	5.37 0	5.87 .09	4.83 0	2.33 0	.66 0	4.01 T	2.47 0	2.24 0	35.91 .12
1947 P Q	5.02 .01	.38 0	.80 0	3.65 0	5.96 T	5.39 T	2.49 0	3.72 .01	2.81 0	.84 0	2.50 0	1.10 0	34.66 .02
1948 P Q	1.73 0	2.67 .17	4.33 0	4.95 T	3.39 0	4.34 0	3.37 0	.86 0	3.39 0	2.69 0	2.75 0	2.07 0	36.54 .17
1949 P Q	4.86 0	2.56 0	3.57 T	2.43 0	2.96 0	2.84 0	7.39 .01	2.41 T	3.33 0	.86 0	1.21 0	2.49 0	36.91 .01
1950 P Q	8.39 .01	3.44 T	2.21 0	3.98 0	4.04 .03	1.99 0	6.92 T	2.35 0	5.47 .15	1.44 0	5.91 T	2.42 .09	48.56 .28
1951 P Q	4.23 .16	3.09 .12	4.58 0	2.99 0	2.24 0	5.48 T	2.79 0	.54 0	2.89 0	1.79 0	4.64 0	3.98 .01	39.24 .29
1952 P Q	5.83 .22	2.48 0	3.17 0	3.96 0	4.18 0	2.72 T	3.86 0	1.93 0	2.57 0	.78 0	1.66 0	2.14 0	35.28 .22
1953 P Q	4.49 0	1.15 0	2.81 0	2.20 0	4.06 .01	2.18 0	5.36 0	1.53 0	1.04 0	.61 0	.90 0	2.07 0	28.10 .01
1954 P Q	2.34 0	1.71 0	3.21 0	2.91 0	2.10 0	1.86 0	3.27 0	3.19 0	1.20 0	5.75 0	1.30 0	2.45 0	31.29 0
1955 P Q  P Q  P Q	1.15 0  0  0  0	3.00 T  0  0  0	4.49 .02  0  0  0	3.55 0  0  0  0	1.60 0  0  0  0	2.61 0  0  0  0	3.91 0  0  0  0	2.99 0  0  0  0	2.36 0  0  0  0	2.05 0  0  0  0	3.07 0  0  0  0	.22 0  0  0  0	31.00 .02      
** Av. P ** Av. Q	2.84 .02	2.24 .02	3.49 .04	3.11 .01	3.95 .02	4.19 .01	4.20 .01	2.81 T	2.61 .02	2.39 T	2.38 T	2.10 .01	36.31 .16
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1938. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - good.



1-56

COSHOCTON, OHIO Watershed 132

LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 0.59 ac.

SHAPE: Roughly elliptical, width - 100 ft., length - 180 ft.

SLOPES: 30% is in 12-18% class; 35% in 18-25%; 35% in 25-35%. Aspect SW.

SOILS: Residual; developed from shale; topsoil - silt loam texture, moderate fine to medium crumb structure, 7-8 in. deep; subsoil - moderate permeability, medium internal drainage, heavy layer at 14-24 in. somewhat restricts drainage. Keene silt loam - 100%.

EROSION: 1 - 100%.

LAND CAPABILITY: III - 30%; IV - 35%; VI - 35%.

SURFACE DRAINAGE: Good; length of principal waterway - 200 ft.; a natural watershed with surface flow to a well defined waterway near the outlet; earth dike boundary.

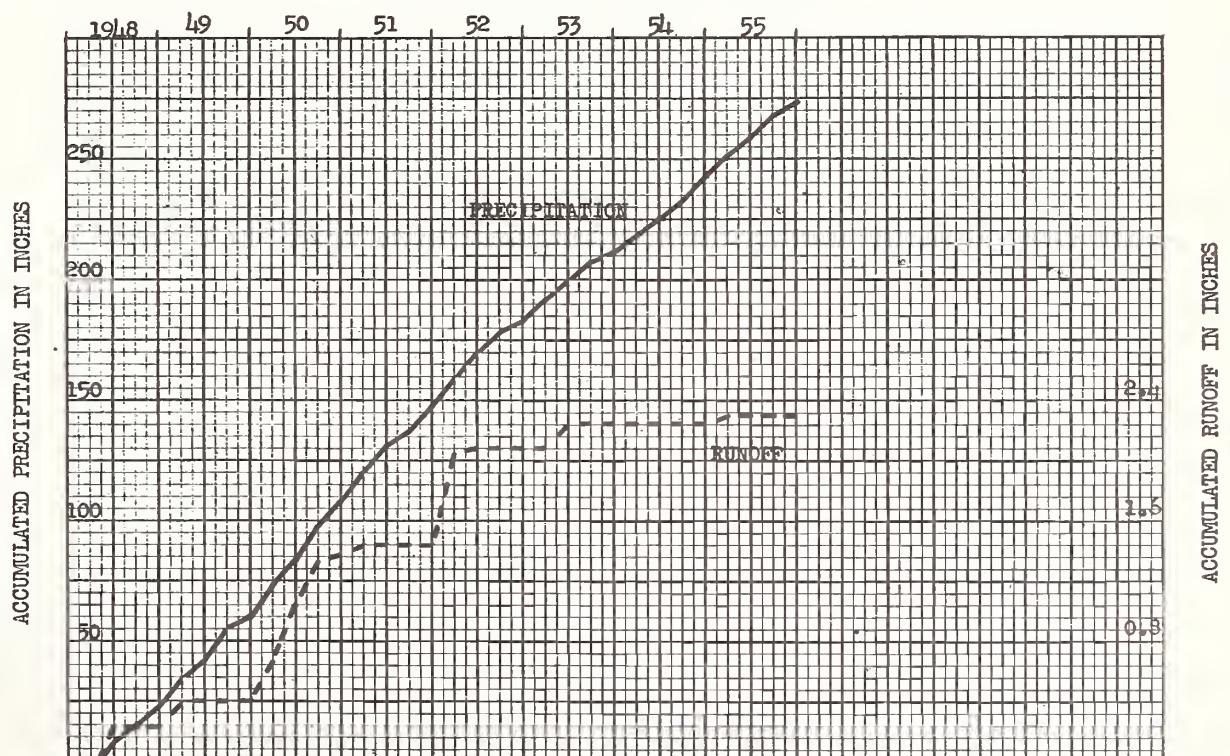
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 1 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Uneven age stand of hardwoods; good woodland management; no grazing. This watershed and Watershed 131 both lie within the eastern boundary of Watershed 172.

GENERALLY REPRESENTS: Uneven age stand of hardwoods areas of Keene silt loams with medium internal drainage, good surface drainage, slight erosion, found on hilly to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



## Coshooton, Ohio Watershed 132

Notes: \*\* Does not include the part year amounts for 1948. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - good; Q - good.

LOCATION: Coshocoton Co., Ohio; 10 mi. NE of Coshocoton; Walhonding River, Muskingum River Basin.

AREA: 0.92 ac.

SHAPE: Roughly triangular with base 330 ft. and height 260 ft.

SLOPES: 5% is in 12-18% class; 49% in 18-25%; 46% in 25-35%. Aspect SW.

SOILS: Residual; developed from sandstone; topsoil - silt loam texture, crumb structure, depth 7 in. subsoil - moderately rapid permeability, internal drainage - rapid, no impeding layer. Muskingum silt loam - 100%.

EROSION: 1 - 54%; 2 - 46%.

LAND CAPABILITY: III - 5%; IV - 49%; VI - 46%.

SURFACE DRAINAGE: Good; principal waterway - 375 ft.; a natural watershed with no well defined waterway; earth dike boundary.

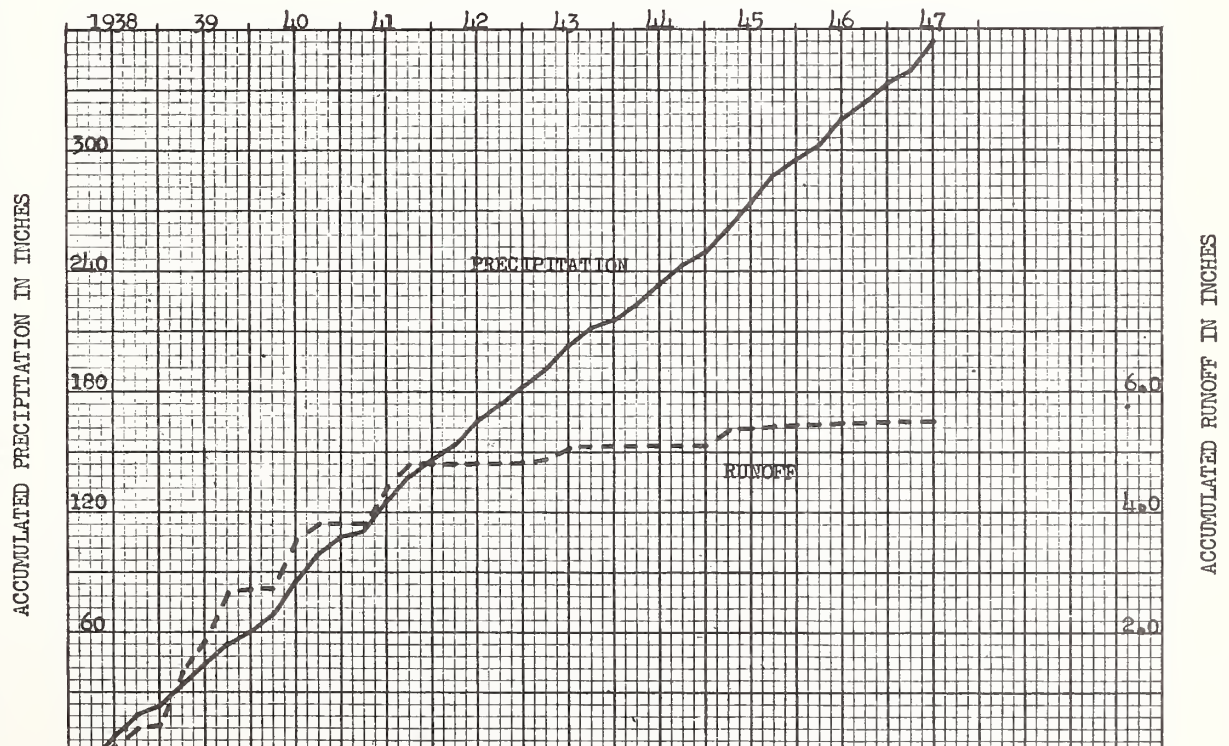
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete Parshall flume, 0.5 ft. wide, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Poverty grass to 1938; reforested to pines in 1938; complete coverage by 1944; no grazing, burning or other disturbance after reforestation.

GENERALLY REPRESENTS: Reforested areas of Muskingum silt loam soil with rapid internal drainage, good surface drainage, and slight to moderate erosion, found on steeper slopes in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

Coshocton, Ohio Watershed 134

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q					5.01 .05	3.72 .08	3.50 .02	3.58 .24	3.07 0	0.61 0	2.89 .04	1.20 .03	23.58 .46
1939 P Q	2.67 .13	4.37 .62	3.73 .13	3.88 .24	1.04 T	6.15 .27	6.89 .79	1.36 .01	1.02 T	4.25 .08	.60 0	1.55 T	37.51 2.27
1940 P Q	1.33 0	3.25 0	3.33 .01	4.94 .30	4.57 T	7.69 .50	3.77 .01	7.75 .27	1.90 0	1.14 0	4.14 0	3.11 0	46.92 1.09
1941 P Q	1.69 0	.47 0	1.00 0	.81 0	7.18 .46	6.79 .16	6.25 .34	4.99 .02	1.19 0	5.84 0	1.61 0	1.70 0	39.52 .98
1942 P Q	1.51 0	1.89 0	3.63 .02	2.39 0	4.95 .01	5.16 T	2.38 T	2.56 0	2.48 0	2.37 0	2.85 0	3.73 .02	35.90 .05
1943 P Q	2.02 0	1.59 0	4.30 .04	2.83 0	6.83 .17	2.55 0	4.13 0	3.71 0	.39 0	1.89 0	1.37 0	.98 0	32.59 .21
1944 P Q	.88 0	1.55 0	5.46 T	3.73 T	2.33 0	3.40 T	2.30 0	4.99 T	1.93 T	1.78 T	1.12 0	3.42 0	32.89 T
1945 P Q	1.46 0	2.61 .01	8.18 .30	4.29 0	4.79 .04	3.82 0	2.85 0	1.19 0	9.78 .03	2.72 0	3.59 T	1.90 .03	47.18 .41
1946 P Q	.71 0	3.91 T	2.26 0	1.46 0	5.41 0	6.07 .05	5.43 .01	2.47 0	.76 0	4.11 0	2.57 0	2.33 0	37.49 .06
1947 P Q	5.02 0	.38 0	.80 0	3.65 0	5.89 T	5.81 T							21.55 T
P Q													
P Q													
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** Av. P ** Av. Q	1.53 .02	2.46 .08	3.99 .06	3.04 .07	4.64 .08	5.20 .12	4.25 .14	3.63 .04	2.43 T	3.01 .01	2.23 0	2.34 .01	38.75 .63
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

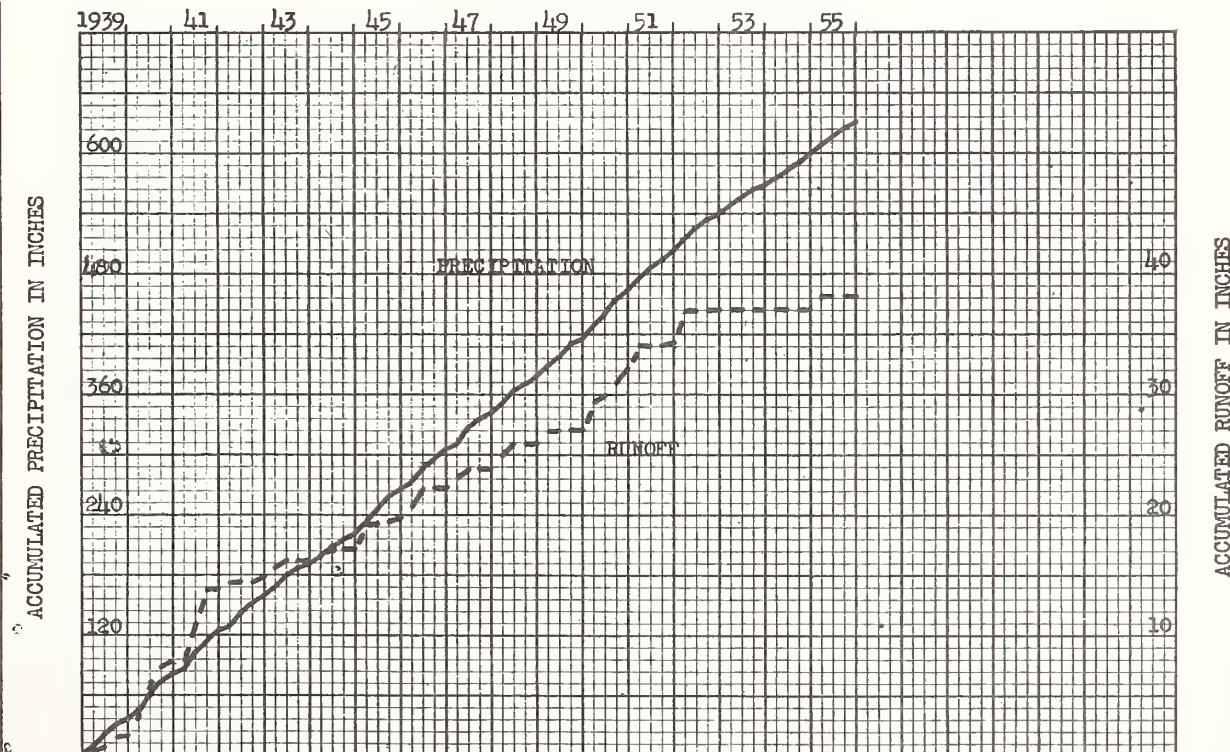
**Notes:** \*\* Does not include the part year amounts for 1938 and 1947. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - good; Q - good.



1-56

COSHOCTON, OHIO Watershed 123LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.AREA: 1.37 ac.SHAPE: Roughly fan shape, radius - 350 ft., length of arc - 330 ft.SLOPES: 44% is in 2-6% class; 56% in 6-12%. Aspect S.SOILS: Residual; developed from shale; topsoil - silt loam texture, moderate fine crumb structure, 7-8 in. deep; subsoil - moderately slow permeability, medium internal drainage, heavy layer at 14-24 in. somewhat restricts drainage. Keene silt loam - 100%.EROSION: 1 - 35%; 2 - 65%.LAND CAPABILITY: II - 44%; III - 56%.SURFACE DRAINAGE: Good; length of principal waterway - 450 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - sheet metal type H flume, 2.5 ft. deep, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; conservation practice started 1941 with corn in 4-yr. rotation of corn, wheat, and 2 yrs. of meadow. One of 5 Watersheds (123, 109, 103, 113, 121) in crop rotation under conservation practice. Data comparable with those of Watersheds 109 (conservation practice), 115 (prevailing practice), and 127 (mulch tillage) cropped in same cycle of rotation.GENERALLY REPRESENTS: Conservation practice on cropland areas of Keene silt loams with medium internal drainage, good surface drainage, slight to moderate erosion, found on undulating to gently rolling topography in the Allegheny-Cumberland Plateau.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshooton, Ohio Watershed 123

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P	1.65	4.11	3.57	3.89	1.29	6.91	6.79	1.26	*0.87	*4.61	*0.50	*1.30	36.75
Q	.01	*.15	.20	.25	0	.05	.72	T	0	.36	0	0	1.74
1940 P	1.33	2.76	*3.53	4.32	4.92	7.79	3.91	7.57	1.78	1.04	4.50	3.30	46.75
Q	.07	.99	*.61	1.04	.30	1.38	.38	.88	0	0	.18	.39	6.22
1941 P	1.75	.35	.92	.96	6.82	7.49	5.91	5.13	1.49	5.81	1.59	1.87	40.09
Q	0	0	.02	0	1.58	1.50	1.77	.96	.05	T	0	.02	5.90
1942 P	1.38	1.99	3.61	2.02	4.79	6.20	2.39	*2.96	2.53	2.21	2.92	3.79	36.79
Q	0	.04	.36	.14	T	.02	0	0	0	0	0	.52	1.08
1943 P	2.08	1.58	3.99	2.85	6.91	2.44	3.94	3.55	.46	1.73	1.46	.94	31.93
Q	.01	.02	.79	0	.44	0	0	0	0	0	0	0	1.26
1944 P	.97	1.46	5.04	3.75	2.14	3.04	2.34	4.12	1.73	1.61	.98	2.42	29.60
Q	0	0	.70	*.30	0	0	T	T	T	0	0	0	1.00
1945 P	1.10	2.47	7.99	4.33	4.72	4.03	2.63	1.01	9.29	2.78	3.45	1.56	45.36
Q	0	.18	1.85	.02	0	T	0	0	.37	.13	.04	T	2.59
1946 P	.59	3.86	2.24	1.46	5.64	6.84	5.23	2.45	.71	4.27	2.59	2.29	38.17
Q	0	.89	.05	0	T	1.49	0	0	0	0	0	0	2.43
1947 P	4.99	.37	.75	4.12	6.26	5.75	2.82	3.52	2.93	.98	2.46	1.37	36.32
Q	.85	0	0	0	.54	.19	0	T	T	0	0	0	1.58
1948 P	1.76	2.92	4.30	5.04	3.43	4.69	3.12	.97	3.80	2.70	2.84	2.14	37.71
Q	0	.94	.15	1.05	0	0	0	0	0	0	0	0	2.14
1949 P	4.89	2.54	3.36	2.63	2.80	2.96	7.85	2.60	3.22	.93	1.29	2.57	37.64
Q	.71	.21	.11	0	0	0	.16	T	0	0	0	0	1.19
1950 P	8.23	3.43	2.17	4.17	4.34	1.91	6.04	2.19	5.48	1.44	5.84	2.39	47.68
Q	1.85	.40	.03	.34	.26	0	0	0	1.01	0	.10	1.16	5.15
1951 P	4.18	2.68	4.62	3.25	2.52	5.59	2.88	.67	3.07	1.85	4.48	4.04	39.83
Q	1.05	.50	.19	0	0	0	0	0	0	0	0	.33	2.07
1952 P	6.00	2.50	3.28	4.07	4.08	2.83	3.95	1.94	2.59	.75	1.70	2.21	35.90
Q	2.13	.34	.15	.02	0	0	0	0	0	0	0	0	2.64
1953 P	4.90	1.18	2.69	2.23	3.98	2.39	4.74	1.63	.95	.50	.99	2.02	28.20
Q	.03	0	0	0	0	0	0	.01	0	0	0	0	.04
1954 P	2.31	1.70	3.25	2.97	2.08	1.91	3.32	3.39	1.13	5.85	1.31	2.45	31.67
Q	0	0	.01	0	0	0	0	0	0	0	0	.01	.02
1955 P	1.25	2.98	4.44	3.56	1.55	2.83	3.31	3.59	2.36	2.22	3.28	.31	31.68
Q	0	.17	.90	0	0	0	0	0	0	0	T	0	1.07
P													
Q													
P													
Q													
P													
Q													
Av. P	2.90	2.29	3.51	3.27	4.02	4.45	4.19	2.86	2.61	2.43	2.48	2.17	37.18
Av. Q	.39	.28	.36	.19	.18	.27	.18	.11	.08	.03	.02	.14	2.23
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \* Partially estimated. Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio.  
 Quality of records: P - excellent; Q - excellent.



1-56

COSHOCTON, OHIO Watershed 115

LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 1.61 ac.

SHAPE: Roughly a right triangle, base - 240 ft., height - 390 ft.

SLOPES: 32% is in 2-6% class; 68% in 6-12%. Aspect SE.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam texture, moderate fine crumb structure, 6-7 in. deep; subsoil - moderate permeability, rapid internal drainage, no impeding layer. Muskingum silt loam - 75%; Keene silt loam - 25%.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 32%; III - 68%.

SURFACE DRAINAGE: Good; length of principal waterway - 430 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

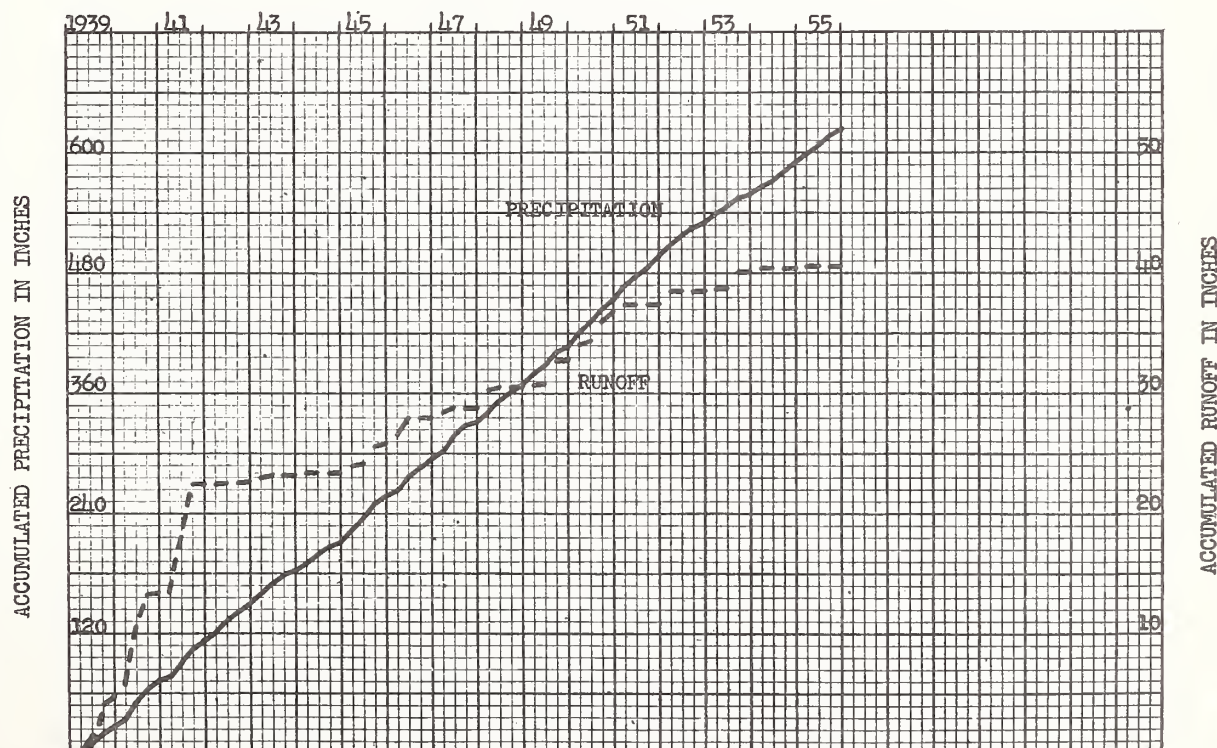
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 2.5 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated, prevailing practice; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 - corn in 4-yr. rotation of corn, wheat, and 2 years of meadow. One of 4 Watersheds (115, 110, 118, 106) in crop rotation under prevailing practice. Data comparable with those of Watersheds 123 and 109 (conservation practice) and 127 (mulch tillage) cropped in same cycle of rotation.

GENERALLY REPRESENTS: Prevailing practice on cropland areas of Muskingum and Keene silt loams with rapid internal drainage, good surface drainage, moderate erosion, found on undulating to gently rolling topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshooton, Ohio Watershed 115

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				3.89 .47	1.29 T	6.91 1.12	6.79 2.52	1.26 .01	*0.87 T	*4.61 .74	*0.50 T	*1.30 T	27.42 4.86
1940 P Q	1.33 .06	2.76 .34	*3.53 .56	4.32 .88	4.92 1.04	7.79 2.94	3.91 .78	7.57 1.70	1.78 .05	1.04 0	4.50 .12	3.30 .09	46.75 8.56
1941 P Q	1.75 0	.35 0	.92 T	.96 0	6.82 2.37	7.49 2.30	5.91 2.32	5.13 1.75	1.49 .34	5.81 T	1.59 T	1.87 0	40.09 9.08
1942 P Q	1.38 0	1.99 0	3.61 .03	2.02 0	4.79 .04	6.20 .15	2.39 0	*2.96 0	2.53 0	2.21 0	2.92 0	3.79 .11	36.79 .33
1943 P Q	2.08 0	1.58 0	3.99 .21	2.85 0	6.91 .18	2.44 0	3.94 0	3.55 0	.46 0	1.73 0	1.46 0	.94 T	31.93 .39
1944 P Q	.97 .05	1.46 0	5.04 .13	3.75 .03	2.14 0	3.04 0	2.34 0	4.12 T	1.73 T	1.61 0	.98 0	2.42 0	29.60 .21
1945 P Q	1.10 0	2.47 .09	7.99 .52	4.33 .02	4.72 T	4.03 .14	2.63 0	1.01 0	9.29 1.50	2.78 .14	3.45 .03	1.56 .05	45.36 2.49
1946 P Q	.59 0	3.86 .75	2.24 .01	1.46 0	5.64 .03	6.84 1.33	5.23 .04	2.45 0	.71 0	4.27 0	2.59 0	2.29 .01	38.17 2.17
1947 P Q	4.99 .37	.37 0	.75 0	4.12 T	6.26 .24	5.75 .15	2.82 0	3.52 T	2.93 T	.98 0	2.46 0	1.37 0	36.32 .76
1948 P Q	1.76 .01	2.92 1.37	4.30 .04	5.04 .44	3.43 T	4.69 0	3.12 0	.97 0	3.80 0	2.70 0	2.84 0	2.14 .01	37.71 1.87
1949 P Q	4.89 .10	2.54 .02	3.36 .02	2.63 0	2.80 .02	2.96 .01	7.85 1.66	2.60 .23	3.22 .05	.93 0	1.29 0	2.57 0	37.64 2.11
1950 P Q	8.23 1.03	3.48 .21	2.17 .02	4.17 .11	4.34 .20	1.91 0	6.04 .04	2.19 .01	5.48 1.59	1.44 0	5.84 .29	2.39 .58	47.68 4.08
1951 P Q	4.18 .33	2.68 .11	4.62 .05	3.25 0	2.52 0	5.59 T	2.88 0	.67 0	3.07 0	1.85 0	4.48 0	4.04 .08	39.83 .57
1952 P Q	6.00 .99	2.50 .15	3.28 .03	4.07 .01	4.08 0	2.83 0	3.95 0	1.94 0	2.59 0	.75 0	1.70 0	2.21 0	35.90 1.18
1953 P Q	4.90 .11	1.18 0	2.69 0	2.23 0	3.98 0	2.39 0	4.74 .74	1.63 .60	.95 0	.50 0	.99 0	2.02 0	28.20 1.45
1954 P Q	2.31 .24	1.70 0	3.25 .01	2.97 T	2.08 0	1.91 0	3.32 0	3.39 0	1.13 0	5.85 0	1.31 0	2.45 .01	31.67 .26
1955 P Q P Q P Q	1.25 0    0	2.98 .02    0	4.44 .24    0	3.56 T    0	1.55 0    0	2.83 0    0	3.31 0    0	3.59 0    0	2.36 0    0	2.22 0    0	3.28 0    0	.31 0    0	31.68 .26    0
**Av. P **Av. Q	2.98 .21	2.18 .19	3.51 .12	3.23 .09	4.19 .26	4.29 .44	4.02 .35	2.96 .27	2.72 .22	2.29 .01	2.61 .03	2.23 .06	37.21 2.25
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio. Quality of records: P - good; Q - excellent.

1-56

COSHOOTON, OHIO Watershed 127

LOCATION: Coshooton Co., Ohio; 10 mi. NE of Coshooton; Walhonding River, Muskingum River Basin.

AREA: 1.65 ac.

SHAPE: Roughly fan shape, radius - 400 ft., length of arc - 330 ft.

SLOPES: 100% is in 6-12% class. Aspect NW.

SOILS: Residual; derived from shale; topsoil - silt loam texture, moderate fine crumb structure, 7-8 in. deep; subsoil - moderately slow permeability, medium internal drainage, heavy layer at 14-24 in. somewhat restricts drainage. Keene silt loam - 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Good; length of principal waterway - 470 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

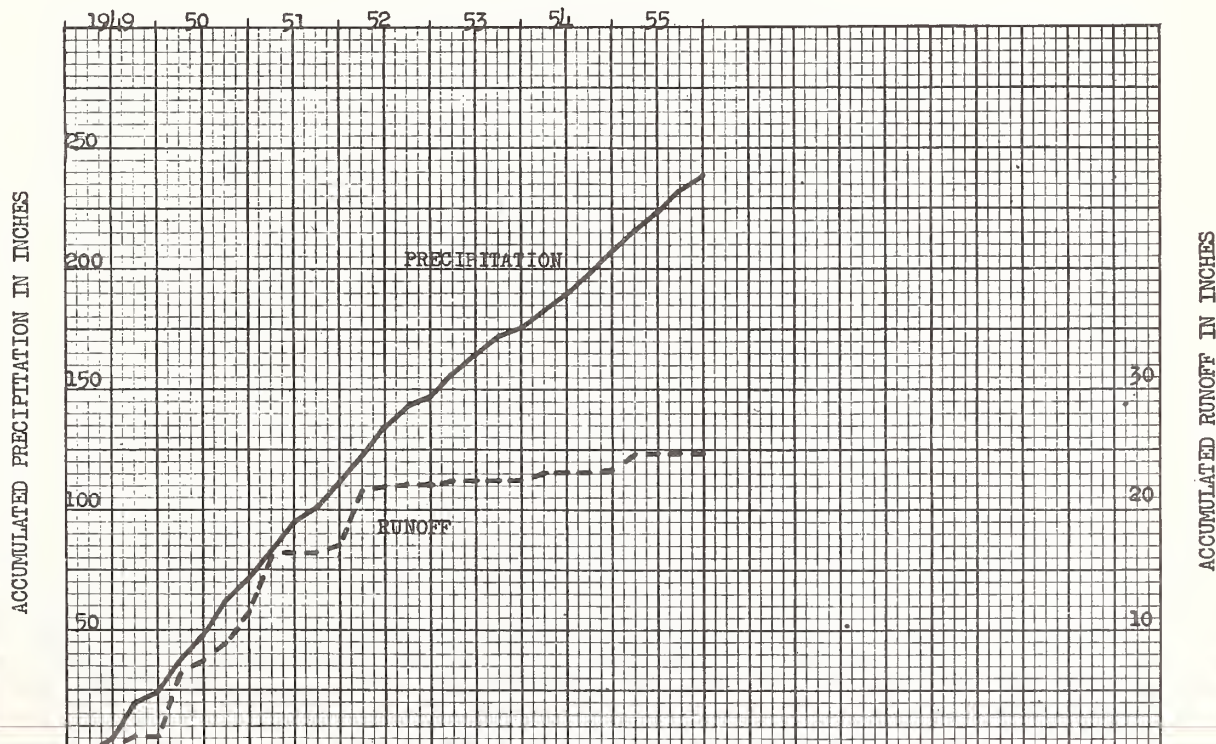
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 3.0 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Pasture to 1949; 1949 subsoiled 14 in. and disked for mulch before corn in 4-yr. rotation of corn, wheat, and 2 years of meadow; 1952 fall subsoiling plus Krilium to depth of 9-15 in. before 1953 corn. One of 3 Watersheds (127, 111, 188) in crop rotation under mulch tillage. Data since 1949 comparable with those of Watersheds 123 and 109 (conservation practice) and 115 (pre-vailing practice) cropped in same cycle of rotation.

GENERALLY REPRESENTS: Mulch tillage practice on cropland areas of Keene silt loams with medium internal drainage, good surface drainage, moderate erosion, found on gently rolling topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Coshocton, Ohio Watershed 127

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1949 P					2.80	2.96	7.85	2.60	3.22	0.93	1.29	2.57	24.22
Q					.13	T	1.02	.02	0	T	0	.02	1.19
1950 P	8.23	3.48	2.17	4.17	4.34	1.91	6.04	2.19	5.48	1.44	5.84	2.39	47.68
Q	3.82	.99	.32	.54	.59	0	0	0	1.49	0	.57	2.17	10.49
1951 P	4.18	2.68	4.62	3.25	2.52	5.59	2.88	.67	3.07	1.85	4.48	4.04	39.83
Q	1.60	2.12	.78	.21	T	.01	.04	0	0	0	0	.63	5.39
1952 P	6.00	2.50	3.28	4.07	4.08	2.83	3.95	1.94	2.59	.75	1.70	2.21	35.90
Q	3.40	.68	.59	.30	.02	T	.02	.03	0	0	0	0	5.04
1953 P	4.90	1.18	2.69	2.23	3.98	2.39	4.74	1.63	.95	.50	.99	2.02	28.20
Q	.31	0	.06	0	.05	T	T	.02	0	0	0	0	.44
1954 P	2.31	1.70	3.25	2.97	2.08	1.91	3.32	3.39	1.13	5.85	1.31	2.45	31.67
Q	.22	0	.33	.04	0	0	0	0	0	0	0	.17	.76
1955 P	1.25	2.98	4.44	3.56	1.55	2.83	3.31	3.59	2.36	2.22	3.28	.31	31.68
Q	.05	.43	1.06	.01	0	0	0	0	0	0	0	0	1.55
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** Av. P	4.48	2.42	3.41	3.38	3.09	2.91	4.04	2.23	2.60	2.10	2.93	2.24	35.83
** Av. Q	1.57	.70	.52	.18	.11	T	.01	.01	.25	0	.10	.50	3.95
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

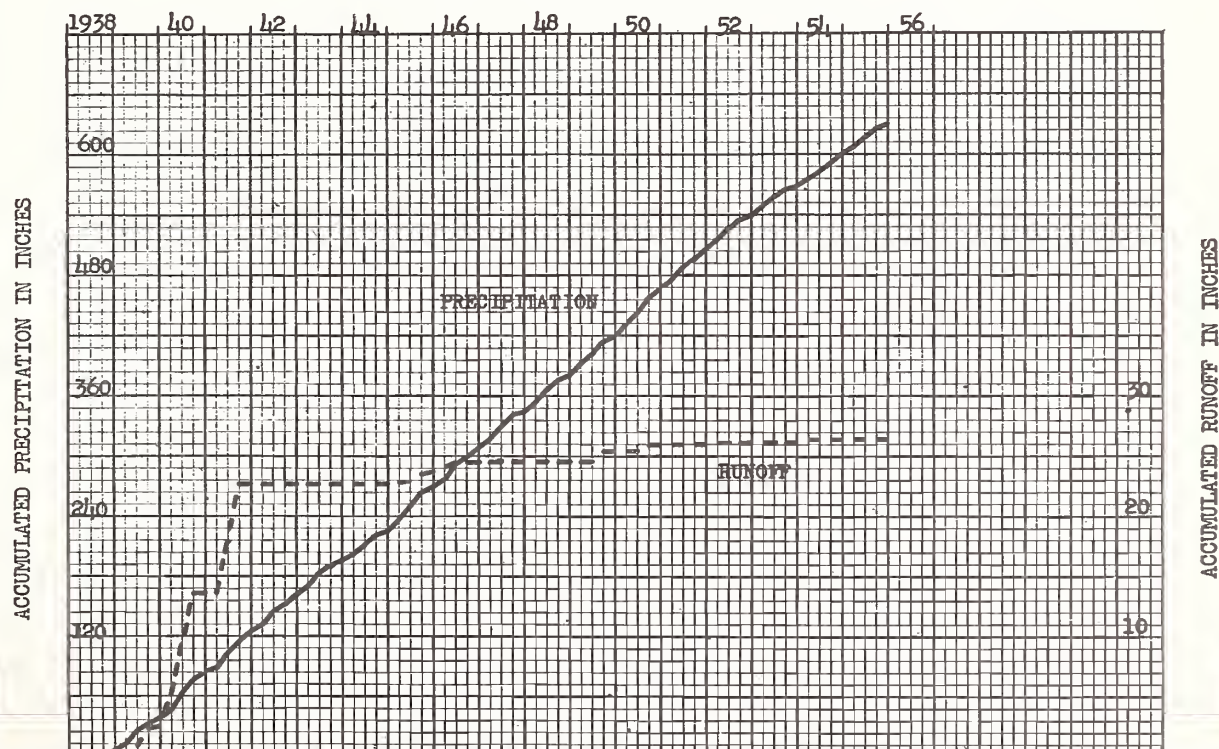
Notes: \*\*Does not include the part year amounts for 1949. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - good.



1-56

COSHOCTON, OHIO Watershed 109LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.AREA: 1.69 ao.SHAPE: Roughly pentagonal, width - 290 ft., length - 340 ft.SLOPES: 28% is in 6-12% class; 72% in 12-18%. Aspect E.SOILS: Residual; developed from shale; topsoil - silt loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, rapid internal drainage, no impeding layer. Muskingum silt loam - 100%.EROSION: 2 - 90%; 3 - 10%.LAND CAPABILITY: III - 100%.SURFACE DRAINAGE: Good; length of principal waterway - 360 ft.; a natural watershed with surface flow to a series of mild draws; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - sheet metal type H flume, 3.0 ft. deep, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; conservation practice started 1941 with corn in 4-yr. rotation of corn, wheat, and 2 yrs. of meadow. One of 5 Watersheds (109, 123, 103, 113, 121) in crop rotation under conservation practice. Data comparable with those of Watersheds 123 (conservation practice), 115 (prevailing practice), and 127 (mulch tillage) cropped in same cycle of rotation.GENERALLY REPRESENTS: Conservation practice on cropland areas of Muskingum silt loams with rapid internal drainage, good surface drainage, moderate to severe erosion, found on gently rolling to hilly topography in the Allegheny-Cumberland Plateau.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 109

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q											2.71 T	1.12 .07	3.83 .07
1939 P Q	1.57 T	4.01 .06	3.60 T	3.84 .03	1.27 .01	6.56 .67	6.64 1.45	1.34 T	0.94 0	4.51 .35	.60 0	1.40 T	36.28 2.57
1940 P Q	.99 .30	2.29 1.50	3.48 .67	4.19 .66	4.46 .82	8.11 2.96	4.07 1.29	7.30 2.69	1.95 .08	1.12 0	3.91 .04	3.29 .03	45.16 11.04
1941 P Q	1.69 0	.41 0	1.02 T	1.03 0	7.18 2.32	7.22 1.93	6.04 2.73	5.18 1.80	1.52 .31	5.61 T	1.58 0	1.64 T	40.12 9.09
1942 P Q	1.32 T	2.00 0	3.68 0	2.44 0	4.97 T	5.83 .01	2.46 0	2.77 T	2.60 T	2.26 0	2.82 T	3.96 0	37.11 .01
1943 P Q	1.98 0	1.81 0	4.12 .03	2.91 0	7.09 .01	2.64 0	4.03 0	3.82 T	.47 0	1.71 0	1.49 0	.90 0	32.97 .04
1944 P Q	.90 0	1.22 0	5.17 T	3.64 T	2.24 0	3.48 T	2.49 T	4.46 T	1.87 T	1.66 T	1.00 0	2.57 0	30.70 T
1945 P Q	1.04 0	2.36 .01	8.06 .06	4.40 0	4.70 0	3.93 .09	2.72 0	1.12 0	9.68 .46	2.68 .02	3.45 T	1.35 .31	45.49 .95
1946 P Q	.58 0	3.72 .33	2.21 0	1.50 0	5.53 0	6.44 .47	5.21 0	2.40 0	.68 0	4.26 0	2.56 0	2.32 0	37.41 .80
1947 P Q	4.84 .01	.36 0	.74 0	3.96 0	6.29 T	5.72 T	2.72 0	3.65 T	3.02 0	.97 0	2.34 0	1.18 T	35.79 .01
1948 P Q	1.91 T	2.78 .01	4.43 0	5.04 .02	3.42 0	4.81 .01	3.49 T	.92 0	3.33 0	2.69 0	2.83 0	2.02 0	37.67 .04
1949 P Q	4.79 .01	2.61 0	3.42 T	2.68 0	2.86 0	2.91 T	7.56 .67	2.57 .03	3.44 0	.90 T	1.28 0	2.42 0	37.44 .71
1950 P Q	8.18 .04	3.21 0	2.06 0	4.15 .01	4.17 T	2.04 T	6.79 T	2.18 T	5.38 .57	1.43 0	5.56 0	2.13 T	47.28 .62
1951 P Q	3.90 .03	2.45 .02	4.39 T	3.10 T	2.41 0	5.54 T	2.93 T	.55 0	3.09 0	1.84 0	4.37 0	3.66 .04	39.23 .09
1952 P Q	5.65 .05	2.32 0	2.97 0	3.85 0	4.08 0	2.94 0	4.10 0	2.01 0	2.62 0	.77 0	1.63 0	2.22 0	35.16 .05
1953 P Q	4.71 0	1.13 0	2.60 0	2.33 0	4.19 T	2.25 0	5.00 T	1.64 T	1.04 0	.47 0	.95 0	2.03 0	28.34 T
1954 P Q	2.22 .18	1.80 0	3.39 0	2.98 0	2.21 0	2.14 0	3.38 0	3.33 0	1.23 0	5.77 0	1.00 0	2.36 0	31.81 .18
1955 P Q	.98 0	2.71 0	4.44 0	3.55 T	1.51 0	2.61 0	3.54 0	3.35 0	2.33 0	2.11 0	3.18 T	.28 0	30.59 T
P Q P Q													
** Av. P ** Av. Q	2.78 .04	2.19 .11	3.52 .04	3.27 .04	4.03 .19	4.42 .36	4.30 .36	2.86 .27	2.66 .08	2.40 .02	2.39 T	2.10 .02	36.92 1.53
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

**Notes:** \*\* Does not include the part year amounts for 1938. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - excellent.



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COSHOCTON, OHIO Watershed 103

LOCATION: Coshooton Co., Ohio; 10 mi. NE of Coshooton; Walhonding River, Muskingum River Basin.

AREA: 0.65 ac.

SHAPE: Roughly fan shape, radius - 260 ft., length of arc - 200 ft.

SLOPES: 38% is in 6-12% class; 62% in 12-18%. Aspect W.

SOILS: Residual; developed from shale; topsoil - silt loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderately slow permeability, medium internal drainage, heavy layer at 14-24 in. somewhat restricts drainage. Keene silt loam - 90%; Muskingum silt loam - 10%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Good; length of principal waterway - 280 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

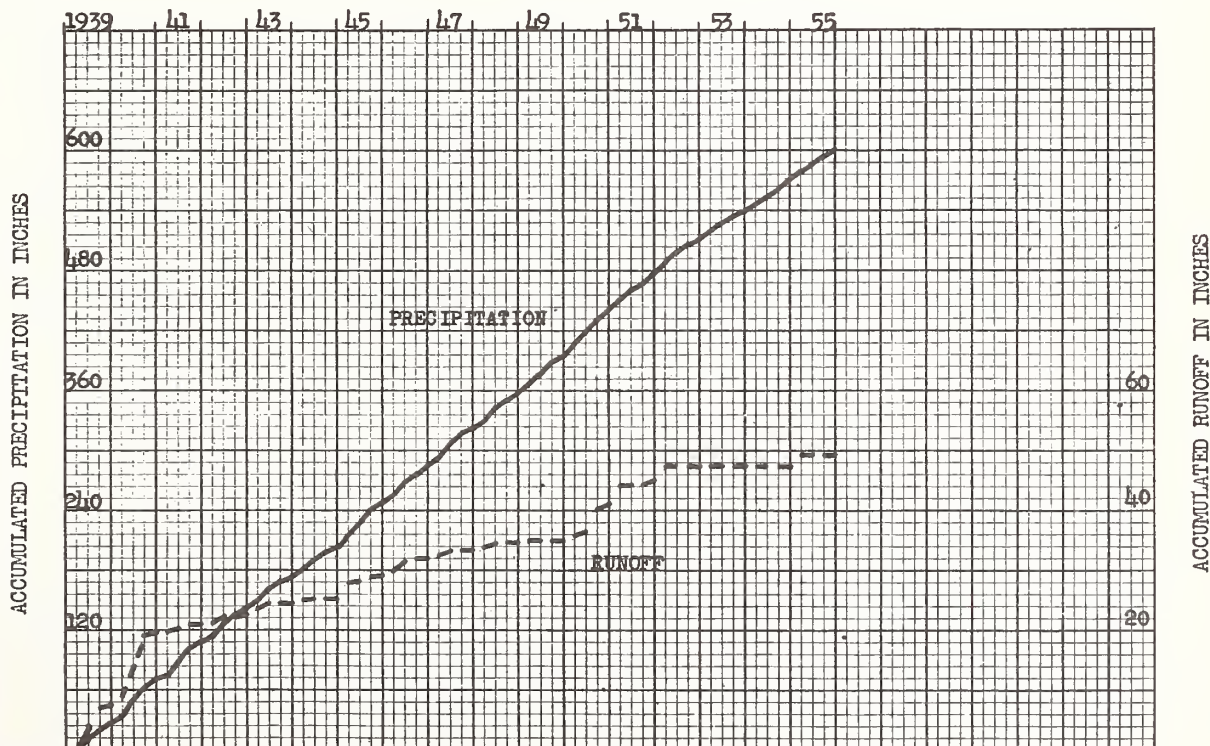
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 2.0 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1937 - oats; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 - meadow; conservation practice started in 1942 with corn in 4-yr. rotation of corn, wheat, and 2 yrs. of meadow. One of 5 Watersheds (103, 109, 123, 113, 121) in crop rotation under conservation practice. Data comparable with those of Watershed 110 (prevailing practice) cropped in same cycle of rotation.

GENERALLY REPRESENTS: Conservation practice on cropland areas of Keene silt loams with medium internal drainage, good surface drainage, moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 103

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P				3.84	1.27	6.56	6.64	1.34	0.94	4.51	0.60	1.40	27.10
Q				<u>1.42</u>	T	1.64	2.87	.07	T	.59	0	T	<u>6.59</u>
1940 P	*1.18	2.45	3.39	4.32	4.34	7.27	3.56	7.76	1.91	.97	4.35	3.16	144.66
Q	.22	.72	.49	.55	1.19	3.49	<u>1.45</u>	3.28	.33	0	.36	.06	<u>12.14</u>
1941 P	1.42	.29	1.02	1.03	6.49	7.06	5.72	5.45	1.38	5.63	1.51	1.46	38.46
Q	0	0	.07	0	.26	.30	.52	.06	0	0	T	.06	1.27
1942 P	1.29	1.85	3.28	1.92	4.71	5.22	2.20	2.56	2.57	2.06	2.37	3.44	33.47
Q	0	0	.19	.08	.50	.58	.02	0	0	0	.02	.39	1.78
1943 P	1.79	1.45	3.75	2.60	6.68	2.33	3.54	3.72	.33	1.63	1.41	.83	30.06
Q	.04	.06	.92	.01	.77	0	0	0	0	0	0	.07	1.87
1944 P	.88	1.15	5.16	3.67	2.12	3.35	2.44	4.49	1.85	1.62	.98	2.16	29.87
Q	.13	0	.25	.28	0	0	0	0	0	T	0	0	.66
1945 P	.80	2.40	8.05	4.24	4.58	3.76	2.45	1.23	10.28	2.56	3.45	1.49	45.29
Q	0	.20	2.54	.07	.28	0	0	0	.99	.10	<u>.02</u>	T	<u>4.20</u>
1946 P	.66	3.76	2.19	1.50	5.38	6.44	5.27	2.36	.66	4.20	2.61	2.30	37.33
Q	0	.41	.02	0	T	1.79	.39	.03	0	0	T	0	2.64
1947 P	4.99	.38	.68	3.43	6.15	6.08	2.61	3.97	2.97	.97	2.31	1.18	35.72
Q	.45	0	0	.01	.47	.35	T	.04	0	0	0	0	1.32
1948 P	1.91	2.78	4.43	5.04	3.27	4.22	2.90	.83	3.33	2.52	2.57	2.02	35.82
Q	T	.39	.15	.70	.01	0	0	0	0	0	0	0	1.25
1949 P	4.79	2.61	3.42	2.68	2.63	3.09	7.31	2.18	3.41	.82	1.28	2.42	36.64
Q	.23	.06	.02	0	0	0	.01	0	0	0	0	0	.32
1950 P	8.18	3.21	2.06	4.15	3.90	1.86	6.96	2.15	5.69	1.40	5.56	2.13	47.25
Q	.80	.14	0	.24	.42	0	1.08	.19	2.62	.01	.14	.69	6.33
1951 P	3.90	2.45	4.39	3.10	2.11	5.12	2.63	.42	2.88	1.59	4.37	3.66	36.62
Q	1.74	.99	.31	.01	0	0	0	0	0	0	0	.68	3.73
1952 P	5.65	2.32	2.97	3.85	3.64	2.87	3.51	1.85	2.39	.74	1.63	2.22	33.64
Q	2.02	.26	.19	0	0	0	0	0	0	0	0	0	2.47
1953 P	4.71	1.13	2.60	2.33	3.94	1.91	4.96	1.64	.93	.56	.95	2.03	27.69
Q	.02	0	0	0	T	0	0	0	0	0	0	0	.02
1954 P	2.22	1.80	3.39	2.98	2.21	2.08	3.40	3.12	1.15	5.61	1.13	2.30	31.39
Q	0	0	0	0	0	0	0	0	0	.03	0	.08	.11
1955 P	1.04	2.78	4.45	3.42	1.29	2.52	3.66	3.07	2.29	1.98	3.11	.25	29.86
Q	.01	.52	1.35	.07	0	0	0	0	0	0	.01	0	1.96
P													
Q													
P													
Q													
P													
Q													
**Av. P	2.84	2.05	3.45	3.14	3.96	4.07	3.95	2.93	2.75	2.18	2.47	2.07	35.86
**Av. Q	.35	.23	.41	.13	.24	.41	.22	.22	.25	.01	.03	.13	2.63
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - excellent.

1-56

## COSHOCTON, OHIO Watershed 110

LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 1.27 ac.

SHAPE: Roughly fan shape, radius - 310 ft., length of arc - 300 ft.

SLOPES: 40% is in 6-12% class; 60% in 12-18%. Aspect E.

SOILS: Residual; developed from shale; topsoil - silt loam texture, moderate fine crumb structure, 6-7 in. deep; subsoil - moderately slow permeability, medium internal drainage, heavy layer at 14-24 in. somewhat restricts drainage. Keene silt loam - 80%; Muskingum silt loam - 20%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Good; length of principal waterway - 330 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

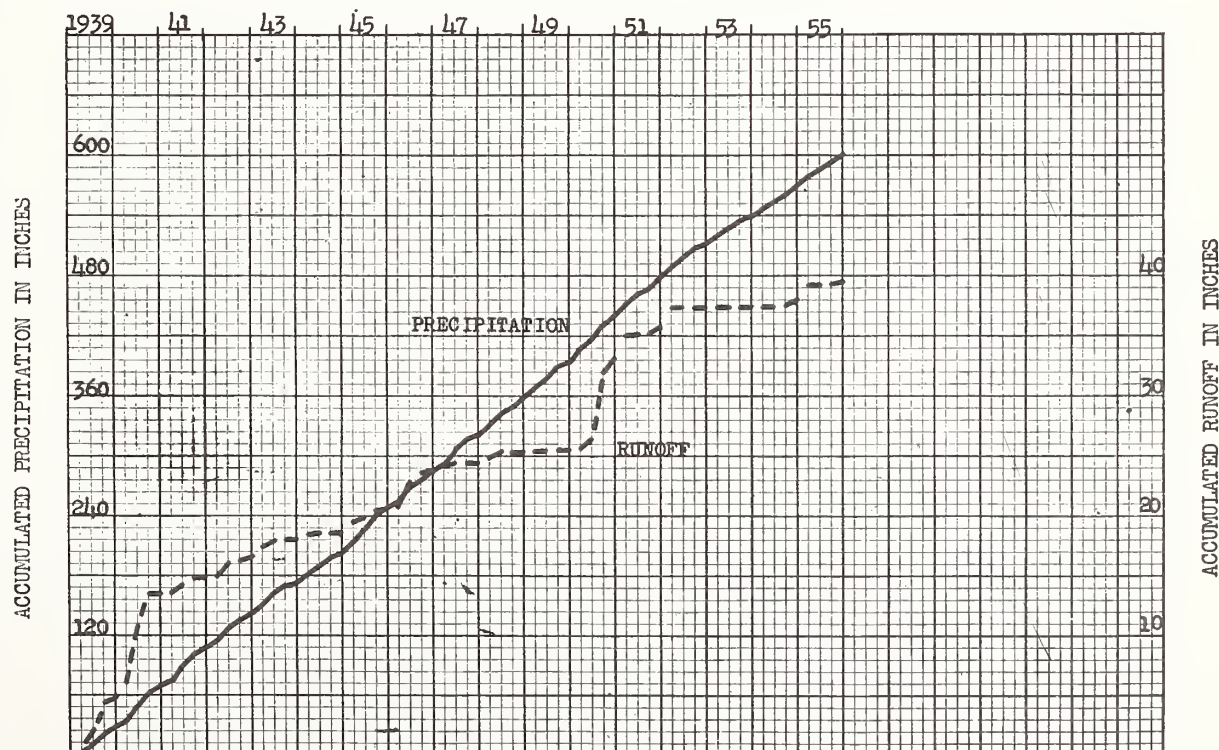
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 2.5 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; prevailing practice; 1937 - oats; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 - meadow; 1942 - corn in 4-yr. rotation of corn, wheat, and 2 yrs. of meadow. One of 4 Watersheds (110, 115, 118, 106) in crop rotation under prevailing practice. Data comparable with those of Watershed 103 (conservation practice) cropped in same cycle of rotation.

GENERALLY REPRESENTS: Prevailing practice on cropland areas of Keene silt loams with medium internal drainage, good surface drainage, moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Coshocton, Ohio Watershed 110

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				3.84 .60	1.27 .05	6.56 1.45	6.64 2.20	1.34 .04	0.94 0	4.51 .50	0.60 0	1.40 0	27.10 4.84
1940 P Q	*1.18 .22	2.45 .64	3.39 .35	4.32 1.34	4.34 .94	7.27 2.52	3.56 .76	7.76 1.85	1.91 .11	.97 0	4.35 .09	3.16 T	44.66 8.82
1941 P Q	1.42 0	.29 0	1.02 .01	1.03 0	6.49 .19	7.06 .36	5.72 .56	5.45 .07	1.38 0	5.63 T	1.51 .01	1.46 .01	38.46 1.21
1942 P Q	1.29 0	1.85 .01	3.28 .08	1.92 .03	4.71 .51	5.22 .62	2.20 .06	2.56 .06	2.57 .04	2.06 0	2.37 .01	3.44 .39	33.47 1.81
1943 P Q	1.79 .04	1.45 .03	3.75 .64	2.60 T	6.68 .54	2.33 0	3.54 0	3.72 .10	.33 0	1.63 0	1.41 0	.83 .07	30.06 1.42
1944 P Q	.88 .21	1.15 .06	5.16 .13	3.67 .10	2.12 0	3.35 0	2.44 0	4.49 0	1.85 T	1.62 T	.98 0	2.16 0	29.87 .50
1945 P Q	.80 0	2.40 .11	8.05 1.00	4.24 T	4.58 .15	3.76 0	2.45 0	1.23 0	10.28 .57	2.56 .04	3.45 T	1.49 .14	45.29 2.01
1946 P Q	.66 0	3.76 .23	2.19 T	1.50 0	5.38 T	6.44 1.96	5.27 .68	2.36 .19	.66 0	4.20 T	2.61 0	2.30 .01	37.33 3.07
1947 P Q	4.99 .42	.38 0	.68 0	3.43 0	6.15 .18	6.08 .18	2.61 0	3.97 .02	2.97 0	.97 0	2.31 0	1.16 0	35.72 .80
1948 P Q	1.91 T	2.78 .39	4.43 .03	5.04 .36	3.27 0	4.22 T	2.90 0	.83 0	3.33 0	2.52 0	2.57 0	2.02 0	35.82 .78
1949 P Q	4.79 .08	2.61 .01	3.42 .01	2.68 0	2.63 0	3.09 0	7.31 .04	2.18 T	3.41 0	.82 0	1.28 0	2.42 0	36.64 .14
1950 P Q	8.18 .27	3.21 .03	2.06 T	4.15 .06	3.90 .64	1.86 0	6.96 1.80	2.15 .52	5.69 3.25	1.40 .08	5.56 .06	2.13 1.02	47.25 7.73
1951 P Q	3.90 1.15	2.45 .52	4.39 .25	3.10 .03	2.11 0	5.12 .03	2.63 .01	.42 0	2.88 0	1.59 0	4.37 .01	3.66 .60	36.62 2.60
1952 P Q	5.65 1.26	2.32 .23	2.97 .07	3.85 .02	3.64 0	2.87 0	3.51 .01	1.85 0	2.39 0	.74 0	1.63 0	2.22 0	33.64 1.59
1953 P Q	4.71 .05	1.13 0	2.60 0	2.33 0	3.94 .02	1.91 0	4.96 0	1.64 0	.93 0	.56 0	.95 0	2.03 0	27.69 .07
1954 P Q	2.22 0	1.80 0	3.39 0	2.98 0	2.21 0	2.08 0	3.40 0	3.12 .09	1.15 0	5.61 .35	1.13 0	2.30 .05	31.39 .49
1955 P Q	1.04 0	2.78 .75	4.45 .63	3.42 .01	1.29 0	2.52 0	3.66 0	3.07 .05	2.29 0	1.98 0	3.11 .19	.25 0	29.86 1.63
P Q P Q P Q													
** Av. P ** Av. Q	2.84 .23	2.05 .19	3.45 .20	3.14 .12	3.96 .20	4.07 .35	3.95 .25	2.93 .18	2.75 .25	2.18 .03	2.47 .02	2.07 .14	35.86 2.16
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - excellent.



LOCATION Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 1.45 ac.

SHAPE: Roughly an equilateral triangle, length of side - 390 ft.

SLOPES: 63% is in 6-12% class; 37% in 12-18%. Aspect NW.

SOILS: Residual; developed from shale; topsoil - silt loam texture, fine, moderate, fine crumb structure, 6-7 in. deep; subsoil - moderately slow permeability, medium internal drainage, no impeding layer. Keene (shallow phase) silt loam - 100%.

EROSION: 2 - 50%; 3 - 50%.

LAND CAPABILITY: III - 100%.

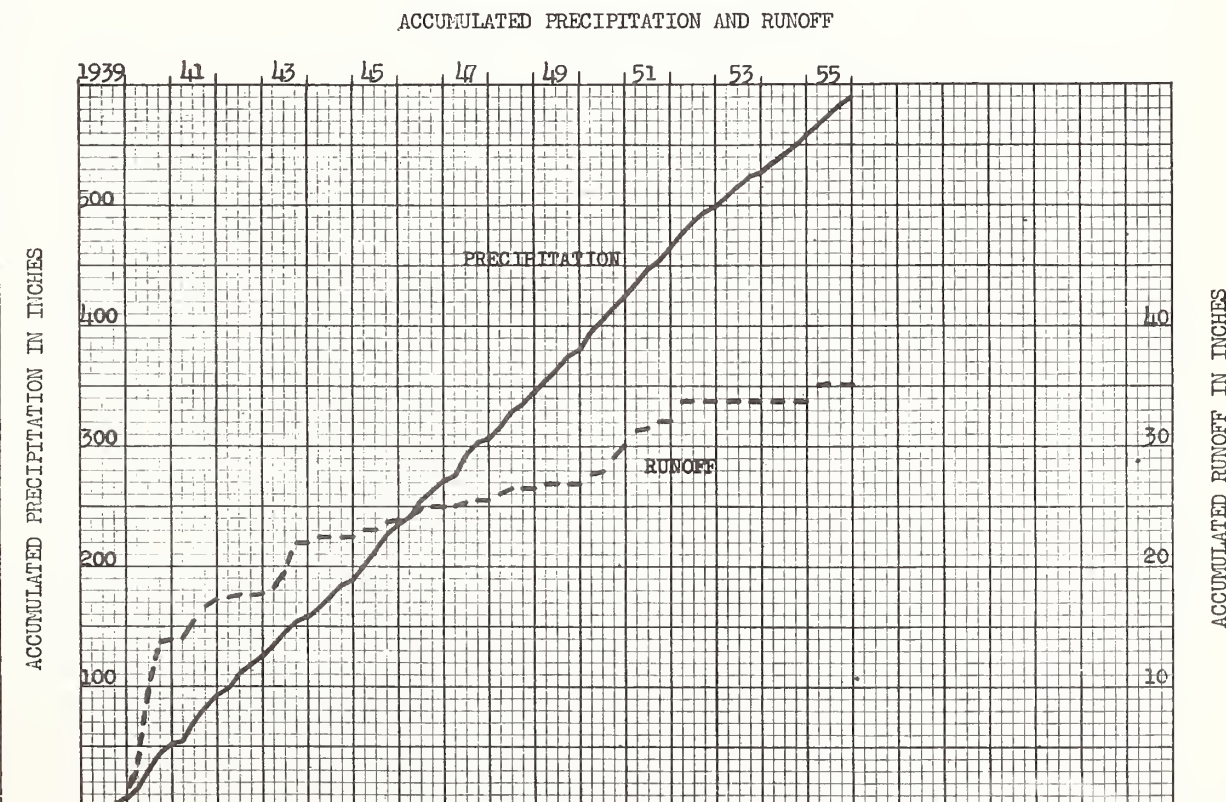
SURFACE DRAINAGE: Good; length of principal waterway - 430 ft.; a natural watershed with surface flow to a well defined waterway in lower half of watershed; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 2.5 ft. deep; FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 and 1942 - meadow; conservation practice started in 1943 with corn in 4-yr. rotation of corn, wheat, and 2 yrs. of meadow. One of 5 Watersheds (113, 109, 123, 103, 121) in crop rotation under conservation practice. Data comparable with those of Watersheds 118 (prevailing practice) and 111 (mulch tillage) cropped in same cycle of rotation.

GENERALLY REPRESENTS: Conservation practice on cropland areas of Keene (shallow phase) silt loams with medium internal drainage, good surface drainage, moderate to severe erosion, found on gently rolling to hilly topography in the Allegheny-Cumberland Plateau.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 113

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P									1.05	4.46	0.56	1.38	7.45
Q									0	.86	0	0	.86
1940 P	1.20	2.66	3.39	4.35	4.69	7.56	3.56	6.68	2.02	1.01	4.29	3.39	44.80
Q	.40	1.50	.95	1.23	1.39	3.54	1.31	2.38	.18	0	.17	.07	13.12
1941 P	1.58	.33	.87	.97	6.81	7.88	5.59	5.66	1.66	5.82	1.49	1.79	40.45
Q	0	0	.05	0	.61	.80	.78	.50	.04	.20	.08	.13	3.19
1942 P	1.35	1.89	3.22	1.97	4.65	5.91	2.16	2.51	2.69	2.06	2.47	3.30	34.18
Q	.01	T	.17	.03	.04	.19	0	0	0	0	.01	.17	.62
1943 P	1.96	1.58	3.87	2.84	6.82	2.40	3.67	3.83	.40	1.72	1.65	.89	31.63
Q	.04	.02	.41	T	.78	.65	.90	1.36	.02	.01	0	.03	4.22
1944 P	.91	1.38	5.28	3.62	2.18	3.27	2.28	4.94	1.86	1.66	1.03	2.37	30.78
Q	.22	.23	.07	.02	0	0	0	T	T	T	0	0	.54
1945 P	.93	2.51	8.19	4.27	4.64	4.04	2.43	1.12	10.30	2.49	3.47	1.58	45.97
Q	0	.09	.44	0	.03	0	0	0	.69	.02	.03	T	1.30
1946 P	.64	3.90	2.09	1.52	5.60	6.62	4.73	2.35	.59	3.49	2.47	2.21	36.21
Q	0	.32	0	0	0	.79	0	0	0	0	0	0	1.11
1947 P	4.94	.40	.74	3.85	5.99	5.73	2.59	4.06	2.97	.93	2.28	1.20	35.68
Q	.03	0	0	0	.03	.30	.01	.15	0	0	0	T	.52
1948 P	1.90	2.78	4.28	4.81	3.43	4.84	3.07	.92	3.94	2.67	2.61	2.17	37.42
Q	.01	.53	.06	.51	.01	T	T	0	T	0	0	.02	1.14
1949 P	4.73	2.60	3.23	2.48	2.80	3.14	7.12	2.07	3.48	.88	1.30	2.42	36.25
Q	.25	.01	.01	0	0	T	.01	0	0	0	0	0	.28
1950 P	7.94	3.24	2.05	3.97	3.92	1.85	5.89	1.57	5.61	1.46	5.57	2.26	45.33
Q	.73	.10	T	.20	.06	0	0	0	1.19	0	.17	.72	3.17
1951 P	3.96	2.81	4.66	2.90	2.39	5.78	2.75	.62	3.14	1.75	4.47	4.34	39.57
Q	.52	.61	.15	T	0	.35	.39	0	.11	0	0	.02	2.15
1952 P	6.02	2.28	3.17	3.75	3.58	2.81	3.92	1.94	2.25	.75	1.58	2.19	34.24
Q	1.35	.17	.07	T	0	0	0	0	0	0	0	0	1.59
1953 P	4.54	1.19	2.52	2.17	4.18	2.47	5.02	1.78	.77	.56	.90	1.95	28.05
Q	0	0	0	0	.01	T	0	0	0	0	0	0	.01
1954 P	2.21	1.68	3.36	2.69	2.15	2.18	3.24	3.18	1.35	5.73	1.27	2.36	31.40
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1955 P	.96	2.88	4.47	3.34	1.50	2.60	2.89	3.56	2.37	2.12	3.20	.25	30.14
Q	0	*.73	.59	0	0	0	0	0	0	0	0	0	1.32
P													
Q													
P													
Q													
P													
Q													
** Av. P	2.86	2.13	3.46	3.09	4.08	4.32	3.81	2.92	2.84	2.19	2.50	2.17	36.37
** Av. Q	.22	.27	.19	.12	.19	.41	.21	.27	.14	.01	.03	.07	2.13
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

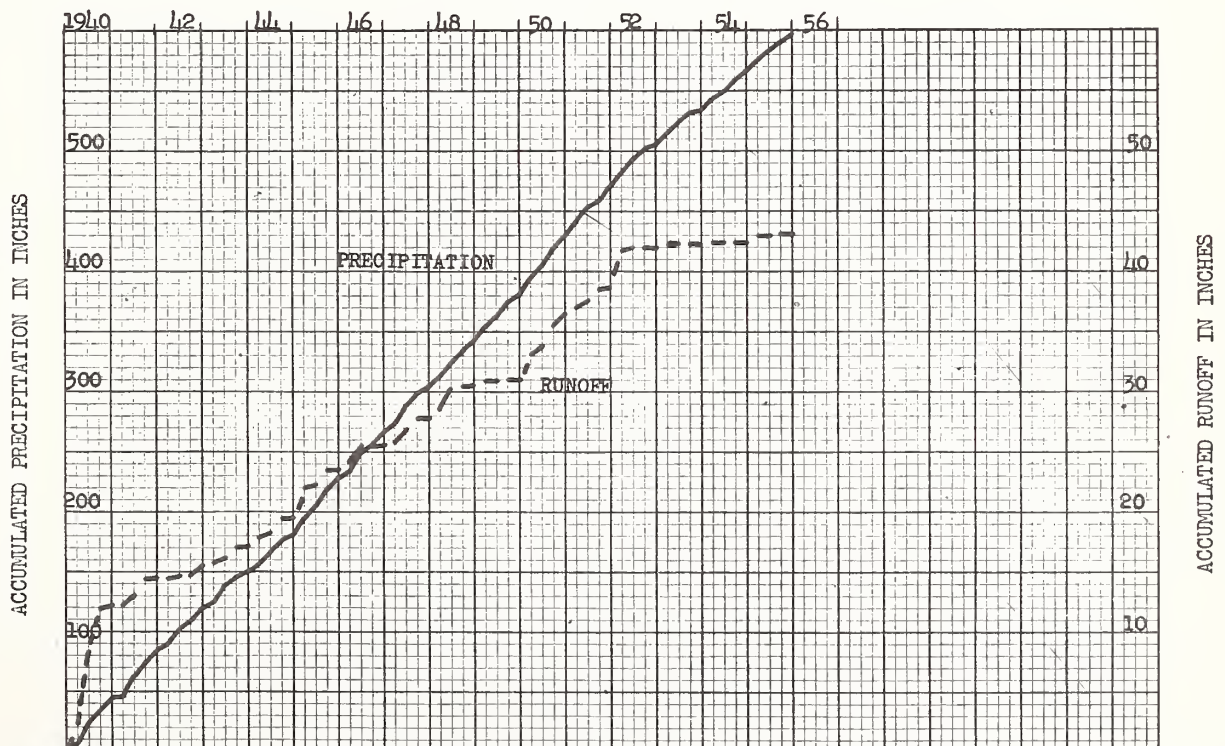
Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - excellent.



1-56

COSHOCTON, OHIO Watershed 118LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.AREA: 1.96 ac.SHAPE: Roughly an equilateral triangle, length of side = 450 ft.SLOPES: 81% is in 6-12% class; 19% in 12-18%. Aspect E.SOILS: Residual; developed from shale; topsoil - silt loam texture, moderate fine crumb structure, 6-7 in. deep; subsoil - moderately slow permeability, medium internal drainage, no impeding layer. Keene (shallow phase) silt loam - 100%.EROSION: 2 - 100%.LAND CAPABILITY: III - 100%.SURFACE DRAINAGE: Good; length of principal waterway - 500 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - sheet metal type H flume, 3.0 ft. deep, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated, prevailing practice; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 and 1942 - meadow; 1943 - corn in 4-yr. rotation of corn, wheat, and 2 yrs. of meadow. One of 4 Watersheds (118, 115, 110, 106) in crop rotation under prevailing practice. Data comparable with those of Watersheds 113 (conservation practice) and 111 (mulch tillage) cropped in same cycle of rotation.GENERALLY REPRESENTS: Prevailing practice on cropland areas of Keene (shallow phase) silt loams with medium internal drainage, good surface drainage, moderate erosion, found on gently rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Coshooton, Ohio Watershed 118

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P	1.25	2.79	3.51	4.28	4.52	7.31	3.48	6.61	1.92	1.04	4.18	3.15	44.04
Q	.27	1.40	.65	1.18	1.11	3.70	.93	2.46	.18	0	.24	.07	12.19
1941 P	1.53	.31	.90	.92	6.72	7.83	5.51	5.87	1.60	6.08	1.56	1.87	40.70
Q	0	0	T	0	.28	.53	.91	.50	.02	.02	.03	.03	2.32
1942 P	1.32	1.98	3.49	2.06	3.49	5.67	2.21	2.45	2.90	2.03	2.75	3.49	33.84
Q	T	0	.03	.07	.01	.08	0	0	0	0	T	.80	.99
1943 P	2.20	1.70	4.12	2.97	6.82	2.38	3.57	4.03	.44	1.69	1.51	.92	32.35
Q	.05	.01	.24	.01	.20	.13	.08	.90	0	0	0	0	1.62
1944 P	.98	1.40	5.21	3.86	2.14	3.13	2.40	5.09	1.88	1.60	1.00	2.44	31.13
Q	.05	.27	.44	.29	T	.15	.09	.94	.23	.13	0	0	2.59
1945 P	1.02	2.43	8.47	4.19	4.76	3.92	2.41	1.29	10.70	2.50	3.47	1.40	46.56
Q	0	.13	2.22	.07	.18	T	T	0	1.27	.11	.05	T	4.03
1946 P	.73	4.29	2.10	1.61	5.55	6.97	4.95	2.33	.64	4.23	2.44	2.39	38.23
Q	0	.47	.01	0	.01	1.39	.03	0	0	0	T	.01	1.92
1947 P	5.34	.36	.83	4.02	6.21	5.43	2.83	4.22	3.10	.96	2.44	1.18	36.92
Q	.20	0	0	0	.13	.90	.03	.88	.05	0	0	0	2.19
1948 P	2.00	2.84	4.45	5.05	3.62	4.84	3.26	.88	4.00	2.77	2.85	2.23	38.79
Q	.01	.56	.26	1.35	.19	.02	.17	0	T	.01	.03	.05	2.65
1949 P	4.94	2.75	3.49	2.34	2.93	3.68	7.59	2.18	3.64	.93	1.41	2.63	38.51
Q	.27	.07	.05	T	0	0	.12	0	0	0	0	0	.51
1950 P	8.57	3.35	2.39	4.50	4.04	1.96	6.31	1.53	5.89	1.52	5.96	2.57	48.59
Q	2.05	.16	.02	.22	.37	0	T	0	1.60	0	.49	.60	5.51
1951 P	4.44	3.10	5.01	3.25	2.28	5.80	2.89	.58	3.13	1.69	4.68	4.49	41.34
Q	.42	.05	.08	T	0	.65	.58	0	.35	0	0	.14	2.27
1952 P	6.37	2.36	3.24	4.20	3.73	2.94	4.06	2.07	2.33	.74	1.71	2.35	36.10
Q	2.36	.38	.32	.15	.03	T	T	0	0	0	0	0	3.24
1953 P	4.60	1.23	2.66	2.27	4.19	2.18	5.07	1.87	.84	.61	.98	2.11	28.61
Q	.14	0	.02	.01	.05	0	0	0	0	0	0	0	.22
1954 P	2.38	1.75	3.49	2.74	2.09	2.24	3.34	3.07	1.42	5.73	1.26	2.33	31.84
Q	0	.02	.13	T	0	0	0	0	0	.02	0	.01	.18
1955 P	1.24	3.03	4.56	3.43	1.40	2.56	3.13	3.51	2.38	2.27	3.32	.23	31.06
Q	0	T	.65	.01	0	0	0	.06	0	0	.04	0	.76
P													
Q													
P													
Q													
P													
Q													
Av. P	3.06	2.23	3.62	3.23	4.03	4.30	3.94	2.97	2.93	2.27	2.59	2.24	37.41
Av. Q	.36	.22	.32	.21	.16	.47	.18	.36	.23	.02	.06	.11	2.70
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio. Quality of records:

P - excellent; Q - excellent.

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COSHOCKTON, OHIO Watershed 111

LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 1.18 ac.

SHAPE: Roughly elliptical, width - 120 ft., length - 460 ft.

SLOPES: 100% is in 6-12% class. Aspect NE.

SOILS: Residual; developed from shale; topsoil - silt loam texture, moderate fine crumb structure, 7-8 in. deep; subsoil - moderately slow permeability, medium internal drainage, heavy layer at 14-24 in. somewhat restricts drainage. Keene silt loam - 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Good; length of principal waterway - 490 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

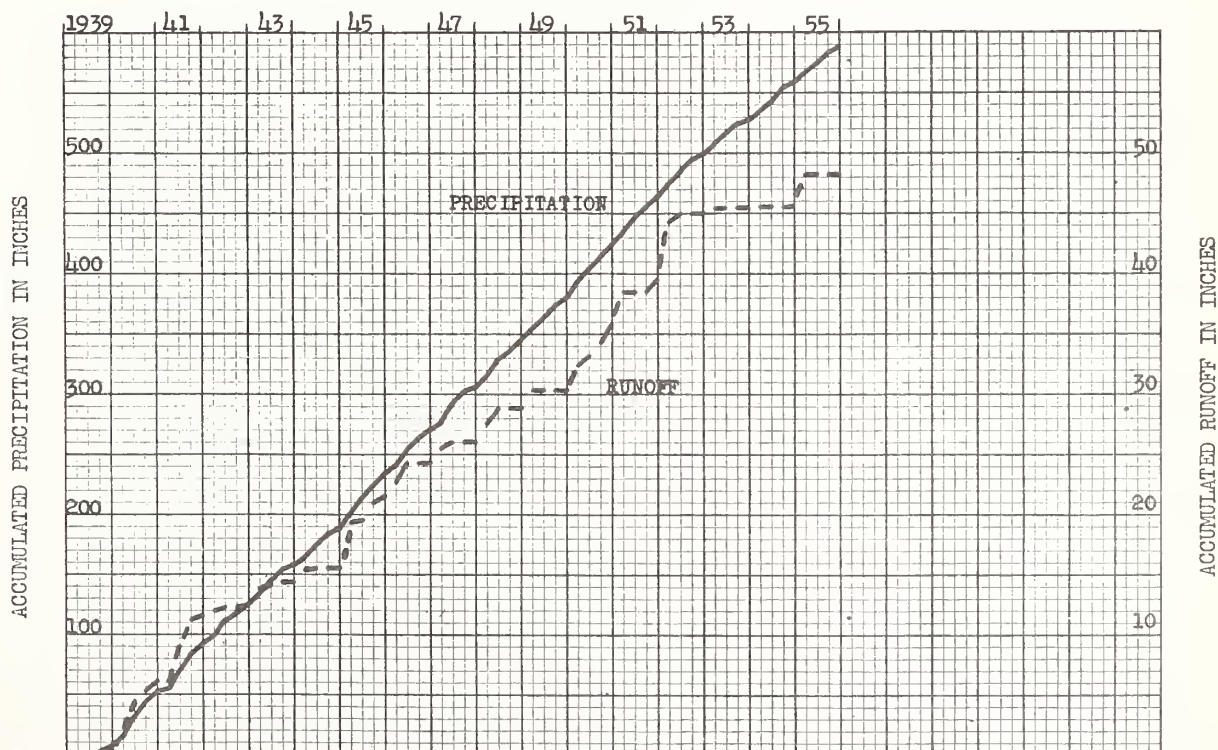
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 2.5 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated, 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 to 1946 - contour strips in 4-yr. rotation of corn, wheat, and 2 years of meadow starting with corn and meadow strips; 1947 - entire watershed in mulched corn, subsoiled to 10 in. depth; 1948 - wheat in 4-yr. rotation of wheat, 2 years of meadow, and corn. One of 3 Watersheds (111, 127, 188) in crop rotation under mulch tillage practice. Since 1947, data comparable with those of Watersheds 113 (conservation practice) and 118 (prevailing practice) cropped in same cycle of rotation.

GENERALLY REPRESENTS: Mulch tillage practice on cropland areas of Keene silt loams with medium internal drainage, good surface drainage, moderate erosion, found on rolling topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshooton, Ohio Watershed 111**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P									1.05	4.46	0.56	1.38	7.45
Q									0	.36	0	0	.36
1940 P	1.20	2.66	3.39	4.35	4.69	7.56	3.56	6.68	2.02	1.01	4.29	3.39	44.80
Q	.05	1.12	.70	.90	.21	1.16	.41	.43	T	0	.22	.55	5.75
1941 P	1.58	.33	.87	.97	6.81	7.88	5.59	5.66	1.66	5.82	1.49	1.79	40.45
Q	0	0	0	0	1.22	1.74	1.45	.72	.09	.13	.05	.14	5.54
1942 P	1.35	1.89	3.22	1.97	4.65	5.91	2.16	2.51	2.69	2.06	2.47	3.30	34.18
Q	.05	.11	.26	.09	.10	.03	0	0	0	0	0	.45	1.09
1943 P	1.96	1.58	3.87	2.84	6.82	2.40	3.67	3.83	.40	1.72	1.65	.89	31.63
Q	.14	.07	.94	0	.42	.02	.02	.07	0	0	0	0	1.68
1944 P	.91	1.38	5.28	3.62	2.18	3.27	2.28	4.94	1.86	1.66	1.03	2.37	30.78
Q	.09	0	.81	.29	0	0	0	.02	.01	.01	0	0	1.23
1945 P	.93	2.51	8.19	4.27	4.64	4.04	2.43	1.12	10.30	2.49	3.47	1.58	45.97
Q	0	1.05	2.69	.03	.27	T	T	0	1.26	.20	.12	.27	5.89
1946 P	.64	3.90	2.09	1.52	5.60	6.62	4.73	2.35	.59	3.49	2.47	2.21	36.21
Q	0	1.12	.09	0	0	1.54	0	0	0	0	0	.06	2.81
1947 P	4.94	.40	.74	3.85	5.99	5.73	2.59	4.06	2.97	.93	2.28	1.20	35.68
Q	1.09	0	0	.01	.22	.36	T	T	0	0	0	0	1.68
1948 P	1.90	2.78	4.28	4.81	3.43	4.84	3.07	.92	3.94	2.67	2.61	2.17	37.42
Q	.14	1.24	.27	1.14	T	T	T	0	T	0	0	.04	2.83
1949 P	4.73	2.60	3.23	2.48	2.80	3.14	7.12	2.07	3.48	.88	1.30	2.42	36.25
Q	.94	.31	.18	T	T	0	T	0	T	0	0	0	1.43
1950 P	7.94	3.24	2.05	3.97	3.92	1.85	5.89	1.57	5.61	1.46	5.57	2.26	45.33
Q	1.60	.49	.04	.60	.21	0	0	T	1.06	0	.22	1.35	5.57
1951 P	3.96	2.81	4.66	2.90	2.39	5.78	2.75	.62	3.14	1.75	4.47	4.34	39.57
Q	1.36	.86	.47	.02	T	0	0	0	0	0	0	.94	3.65
1952 P	6.02	2.28	3.17	3.75	3.58	2.81	3.92	1.94	2.25	.75	1.58	2.19	34.24
Q	3.28	.91	.63	.70	0	T	0	0	0	0	0	0	5.52
1953 P	4.54	1.19	2.52	2.17	4.18	2.47	5.02	1.78	.77	.56	.90	1.95	28.05
Q	.33	0	.03	.01	T	T	0	0	0	0	0	0	.37
1954 P	2.21	1.68	3.36	2.69	2.15	2.18	3.24	3.18	1.35	5.73	1.27	2.36	31.40
Q	T	0	.21	0	0	0	0	0	0	0	0	.12	.33
1955 P	.96	2.88	4.47	3.34	1.50	2.60	2.89	3.56	2.37	2.12	3.20	.25	30.14
Q	0	1.17	1.36	0	0	0	0	0	0	0	0	0	2.53
P													
Q													
P													
Q													
** Av. P	2.86	2.13	3.46	3.09	4.08	4.32	3.81	2.92	2.84	2.19	2.50	2.17	36.37
** Av. Q	.57	.53	.54	.24	.17	.30	.12	.08	.15	.02	.04	.24	3.00
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

**Notes:** \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio. Quality of records: P - excellent; Q - excellent.



LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton: Walhonding River, Muskingum River Basin.

AREA: 1.42 ac.

SHAPE: Roughly fan shape, radius - 350 ft., length of arc - 350 ft.

SLOPES: 31% is in 6-12% class; 58% in 12-18%; 11% in 18-25%. Aspect SW.

SOILS: Residual; developed from sandstone; topsoil - loam to silt loam texture, moderate fine crumb structure, 6-7 in. deep; subsoil - moderate permeability, rapid internal drainage, no impeding layer. Muskingum loam - 78%; Muskingum silt loam - 22%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 89%; IV - 11%.

SURFACE DRAINAGE: Good; length of principal waterway - 400 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

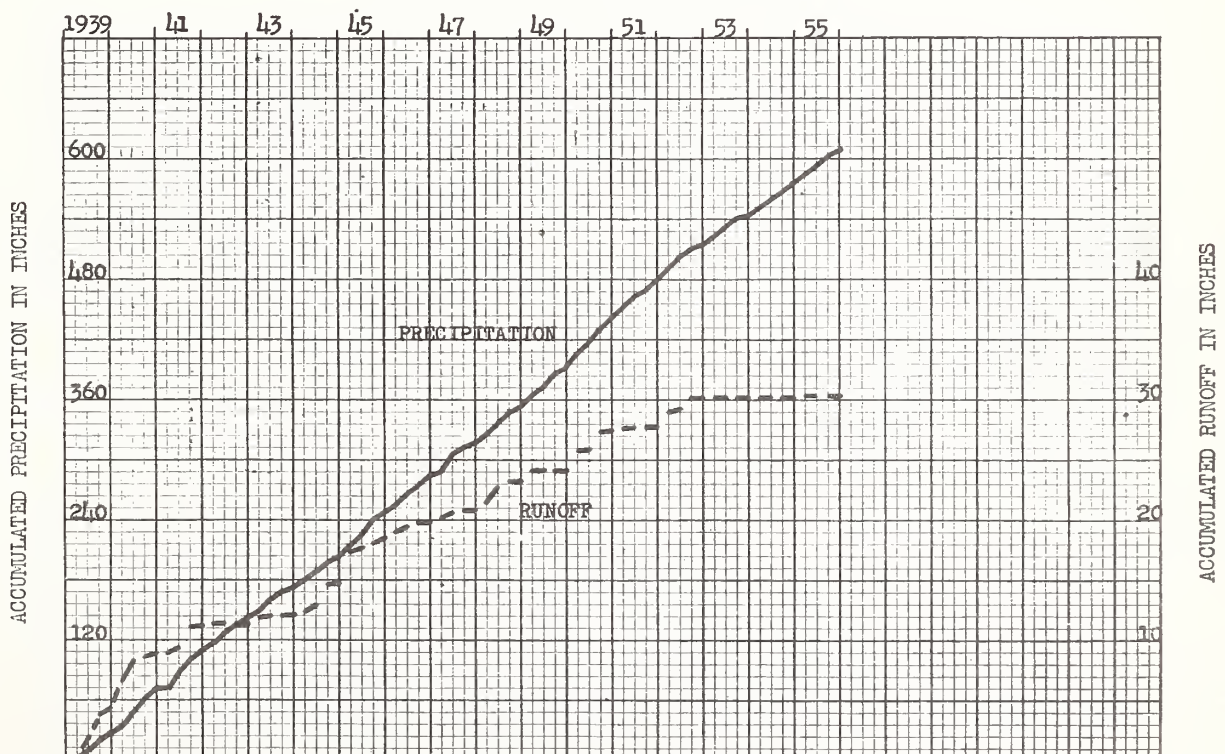
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 2.5 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 to 1943 - meadow; conservation practice started in 1944 with corn in 4-yr. rotation of corn, wheat, and 2 years of meadow. One of 5 Watersheds (121, 109, 123, 103, 113) in crop rotation under conservation practice. Data are comparable with those of Watersheds 106 (prevailing practice) and 188 (mulch tillage) cropped in same cycle of rotation.

GENERALLY REPRESENTS: Conservation practice on cropland areas of Muskingum loams and silt loams with rapid internal drainage, good surface drainage, moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 121

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				3.66 .45	1.37 .04	6.88 1.43	6.86 1.95	1.27 T	1.05 T	4.46 .50	0.56 0	1.37 T	27.48 4.37
1940 P Q	1.27 .20	2.28 1.40	3.30 .50	4.20 .60	4.37 .19	7.26 .92	3.58 .08	6.88 .39	2.09 .01	1.08 0	3.95 .06	3.27 .20	43.53 4.55
1941 P Q	1.34 .01	.33 0	.89 .01	*.98 0	6.78 .08	7.19 .26	5.75 .70	5.97 1.19	1.46 T	5.65 T	1.53 .01	1.79 .01	39.66 2.27
1942 P Q	1.28 .01	*1.92 .03	3.30 .15	1.80 .02	4.64 0	4.68 0	2.52 T	2.41 0	2.58 0	2.06 0	2.49 0	*3.43 .10	33.11 .31
1943 P Q	1.87 .06	1.28 .04	3.72 .34	2.61 0	6.51 .18	1.84 0	3.44 0	3.74 0	.31 0	1.63 0	1.34 0	.86 .09	29.15 .71
1944 P Q	.91 .08	1.31 0	5.30 .06	3.66 .15	2.08 0	3.13 .35	2.66 .17	4.98 1.46	1.85 .29	1.61 .03	.99 0	2.14 0	30.62 2.59
1945 P Q	.79 0	2.28 .33	8.16 2.23	4.25 .14	4.69 .22	3.69 T	2.48 T	1.39 T	10.27 .38	2.36 .09	3.33 .18	1.34 .13	45.03 3.70
1946 P Q	.59 0	3.70 .50	1.99 .06	1.48 0	5.03 0	6.21 .59	5.21 .18	2.16 0	.58 0	4.03 0	2.38 T	2.06 0	35.42 1.33
1947 P Q	4.78 .33	.31 T	.68 T	3.64 0	6.02 .18	5.63 .35	2.62 .01	4.20 .13	2.67 0	.96 0	2.11 0	1.02 0	34.64 1.00
1948 P Q	1.84 T	2.56 .39	3.84 .27	4.28 .61	3.31 .03	4.85 .67	3.44 .41	1.08 0	3.35 .03	2.55 0	2.63 0	2.01 T	35.74 2.41
1949 P Q	4.77 .67	2.40 .10	3.28 .08	2.33 0	3.09 T	3.61 0	7.93 .06	2.28 0	3.73 0	.86 0	1.47 0	2.68 0	38.43 .91
1950 P Q	8.65 1.23	3.46 .35	2.30 .09	4.17 .04	4.14 .07	2.21 0	7.06 .01	1.81 0	6.14 1.39	1.47 0	5.56 0	2.21 .13	49.18 3.31
1951 P Q	4.23 .08	2.33 .16	4.43 .03	3.03 0	2.52 0	5.82 .01	2.77 0	.37 0	2.96 0	1.56 0	4.44 0	4.12 .01	38.58 .29
1952 P Q	6.19 .96	2.30 .29	3.08 .05	3.92 .02	3.82 0	3.03 .21	3.89 .71	2.17 .16	2.54 .04	.75 0	1.58 0	2.38 0	35.65 2.44
1953 P Q	4.69 .01	1.24 T	2.54 T	1.89 T	4.28 T	2.09 0	5.56 0	1.83 0	1.09 0	.55 0	.95 0	1.88 0	28.59 .01
1954 P Q	2.29 0	1.72 0	3.34 .01	3.01 T	2.31 0	2.31 0	3.41 0	3.10 0	1.24 0	5.82 0	1.19 0	2.38 0	32.12 .01
1955 P Q  P Q  P Q	1.08 0    0	2.96 0    0	4.73 .08    0	3.63 .01    0	1.36 0    0	2.45 0    0	3.97 0    0	3.12 0    0	2.39 0    0	2.07 0    0	3.23 0    0	.19 0    0	31.18 .09    0
**Av. P **Av. Q	2.91 .23	2.02 .22	3.43 .25	3.06 .10	4.06 .06	4.12 .21	4.14 .15	2.97 .21	2.83 .13	2.19 .01	2.45 .02	2.11 .04	36.29 1.63
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - excellent.



LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 1.56 ac.

SHAPE: Roughly fan shape, radius - 370 ft., length of arc - 400 ft.

SLOPES: 25% is in 6-12% class; 35% in 12-18%; 40% in 18-25%. Aspect E.

SOILS: Residual; developed from sandstone; topsoil - loam texture, moderate fine crumb structure, 6-7 in. deep; subsoil - moderate permeability, rapid internal drainage, no impeding layer. Muskingum loam - 87%; Muskingum silt loam - 13%.

EROSION: 2 - 60%; 3 - 40%.

LAND CAPABILITY: III - 60%; IV - 40%.

SURFACE DRAINAGE: Good; length of principal waterway - 400 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

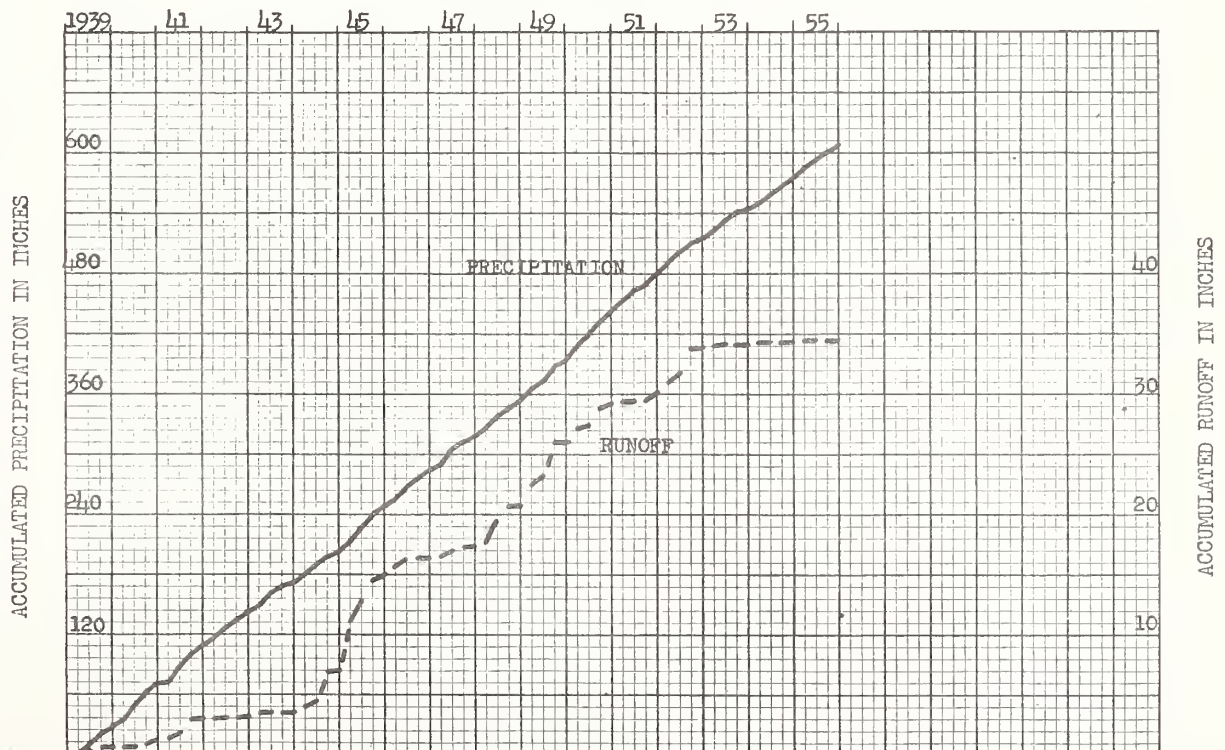
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 2.5 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated, prevailing practice; 1938 to 1940 - meadow; 1941 - meadow to wheat; 1942 - wheat to meadow; 1943 - meadow; 1944 - corn in 4-yr. rotation of corn, wheat, and 2 yrs. of meadow. One of 4 Watersheds (106, 115, 110, 118) in crop rotation under prevailing practice. Data comparable with those of Watersheds 121 (conservation practice) and 188 (mulch tillage) cropped in same cycle of rotation.

GENERALLY REPRESENTS: Prevailing practice on cropland areas of Muskingum loams with rapid internal drainage, good surface drainage, moderate to severe erosion, found on rolling to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshoaton, Ohio Watershed 106

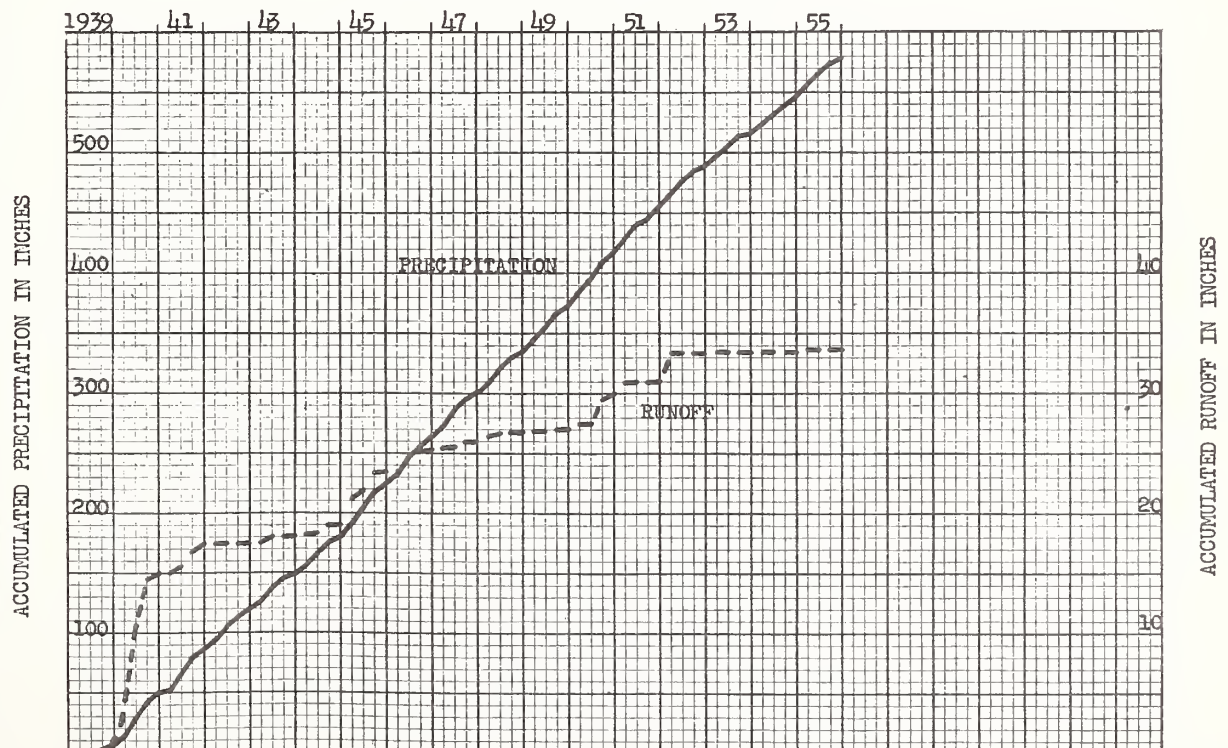
Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				3.66 .14	1.37 0	6.88 .05	6.86 .32	1.27 0	1.05 0	4.46 .09	0.56 0	1.37 0	27.48 .60
1940 P Q	1.27 0	2.28 0	3.30 .02	4.20 T	4.37 0	7.26 .02	3.58 .01	6.88 .27	2.09 T	1.08 0	3.95 .17	3.27 .20	43.53 .69
1941 P Q	1.34 T	.33 T	.89 T	*.98 0	6.78 .23	7.19 .33	5.75 .48	5.97 .63	1.46 T	5.65 .01	1.53 .02	1.79 .03	39.66 1.73
1942 P Q	1.28 T	*1.92 0	3.30 .03	1.80 0	4.64 .04	4.68 .04	2.52 .01	2.41 0	2.58 0	2.06 0	2.49 T	*3.43 .12	33.11 .24
1943 P Q	1.87 .04	1.28 .04	3.72 .16	2.61 T	6.51 .16	1.84 0	3.44 0	3.74 .01	.31 0	1.63 0	1.34 0	.86 T	29.15 .41
1944 P Q	.91 .07	1.31 .14	5.30 .16	3.66 .07	2.08 0	3.13 .44	2.66 .28	4.98 1.64	1.85 .38	1.61 .22	.99 0	2.14 0	30.62 3.40
1945 P Q	.79 0	2.28 .40	8.16 2.55	4.25 1.14	4.69 1.21	3.69 .43	2.48 .02	1.39 .03	10.27 1.73	2.36 .10	3.33 .22	1.34 .07	45.03 7.90
1946 P Q	.59 T	3.70 .69	1.99 .02	1.48 0	5.03 .03	6.21 .53	5.21 .11	2.16 0	.58 0	4.03 T	2.38 T	2.06 .04	35.42 1.42
1947 P Q	4.78 .19	.31 0	.68 0	3.64 .03	6.02 .21	5.63 .16	2.62 .01	4.20 .26	2.67 0	.96 0	2.11 0	1.02 0	34.64 .86
1948 P Q	1.84 .02	2.56 .39	3.84 .10	4.28 .18	3.31 .03	4.85 1.60	3.44 .71	1.08 .06	3.35 .46	2.55 0	2.63 .02	2.01 .04	35.74 3.61
1949 P Q	4.77 1.06	2.40 .24	3.28 .40	2.33 .04	3.09 .23	3.61 .46	7.93 2.38	2.28 .22	3.73 .20	.86 0	1.47 0	2.68 .03	38.43 5.26
1950 P Q	8.65 1.02	3.46 .17	2.30 T	4.17 .07	4.14 .12	2.21 0	7.06 .05	1.81 T	6.14 1.39	1.47 0	5.56 .11	2.21 .28	49.18 3.21
1951 P Q	4.23 .07	2.33 .13	4.43 .04	3.03 0	2.52 0	5.82 .05	2.77 .02	.37 0	2.96 0	1.56 0	4.44 .04	4.12 .41	38.58 .76
1952 P Q	6.19 .71	2.30 .13	3.08 .12	3.92 .07	3.82 .03	3.03 .66	3.89 1.33	2.17 .42	2.54 .39	.75 0	1.58 0	2.38 0	35.65 3.86
1953 P Q	4.69 .15	1.24 .02	2.54 .02	1.89 .01	4.28 .05	2.09 0	5.56 0	1.83 T	1.09 0	.55 0	.95 0	1.88 0	28.59 .25
1954 P Q	2.29 T	1.72 .02	3.34 .08	3.01 .01	2.31 0	2.31 0	3.41 0	3.10 0	1.24 0	5.82 T	1.19 0	2.38 .01	32.12 .12
1955 P Q  P Q  P Q	1.08 0    0	2.96 .13    0	4.73 .19    0	3.63 .01    0	1.36 0    0	2.45 0    0	3.97 0    0	3.12 0    0	2.39 0    0	2.07 0    0	3.23 .02    0	.19 0    0	31.18 .35    0
** Av. P ** Av. Q	2.91 .21	2.02 .16	3.43 .24	3.06 .10	4.06 .15	4.12 .30	4.14 .34	2.97 .22	2.83 .28	2.19 .02	2.45 .04	2.11 .08	36.29 2.14
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshoaton, Ohio. Quality of records: P - excellent; Q - excellent.

1-56

COSHOCTON, OHIO Watershed 188LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.AREA: 2.05 ac.SHAPE: Roughly rectangular, width - 260 ft., length - 380 ft.SLOPES: 84% is in 6-12% class; 16% in 12-18%. Aspect S.SOILS: Residual; developed from shale; topsoil - silt loam texture, moderate fine crumb structure, 7-8 in. deep; subsoil - moderate permeability, rapid internal drainage, no impeding layer. Muskingum silt loam - 80%; Keene (shallow phase) silt loam - 20%.EROSION: 2 - 100%.LAND CAPABILITY: III - 100%.SURFACE DRAINAGE: Good; length of principal waterway - 420 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - sheet metal type H flume, 3.0 ft. deep, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 to 1943 - meadow; conservation practice plus mulch tillage started in 1944 with corn in 4-yr. rotation of corn, wheat, and 2 yrs. of meadow. One of 3 Watersheds (188, 127, 111) in crop rotation under mulch tillage practice. Data are comparable with those of Watersheds 121 (conservation practice) and 106 (prevailing practice) cropped in same cycle of rotation.GENERALLY REPRESENTS: Conservation plus mulch tillage practice on cropland areas of Muskingum and Keene (shallow phase) silt loams with rapid internal drainage, good surface drainage, moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)      Coshocton, Ohio    Watershed 188**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P									1.18	4.10	0.64	1.44	7.36
Q									0	1.24	0	.02	1.26
1940 P	1.06	2.03	2.94	4.30	4.40	7.25	3.56	7.25	2.07	1.11	3.73	2.82	42.52
Q	.63	1.39	1.11	1.25	1.06	3.97	1.12	2.52	.31	0	.37	.01	13.74
1941 P	1.22	.31	1.03	.77	6.59	6.81	5.60	5.79	1.38	5.31	1.42	1.74	37.97
Q	0	0	0	0	.44	.19	.47	.75	.01	.27	.12	.13	2.38
1942 P	1.18	1.71	2.67	1.98	4.58	5.26	2.61	2.35	2.75	1.97	2.35	3.00	32.41
Q	0	0	.03	0	.01	.01	T	0	0	0	0	.01	.06
1943 P	1.86	1.37	3.59	2.39	6.91	2.03	3.55	3.82	.38	1.59	1.32	.80	29.61
Q	0	0	.19	0	.41	0	0	0	0	0	0	.07	.67
1944 P	.87	1.36	5.05	3.46	2.03	3.15	2.54	5.21	1.76	1.65	1.02	2.21	30.31
Q	.08	0	.03	.01	0	.01	0	.71	.10	.05	0	0	.99
1945 P	.78	2.38	8.12	4.19	4.66	3.49	2.29	1.34	10.28	2.26	3.49	1.62	44.90
Q	0	.13	1.94	.29	.44	.03	0	0	1.44	.01	.02	.02	4.32
1946 P	.67	4.23	2.41	1.85	6.25	7.37	5.36	2.54	.74	4.82	2.85	2.47	41.56
Q	0	.26	0	0	T	1.26	.36	0	0	T	0	0	1.88
1947 P	4.78	.31	.68	3.64	6.05	5.62	2.69	3.89	2.72	.85	2.21	1.08	34.52
Q	.09	0	0	0	.04	.04	.04	.49	0	0	0	0	.70
1948 P	1.80	2.40	3.88	4.45	3.24	4.44	3.45	1.10	3.56	2.53	2.40	1.99	35.24
Q	0	.39	.01	.34	0	T	.05	0	0	0	0	0	.79
1949 P	4.57	2.43	3.19	2.25	2.82	3.75	7.39	2.00	3.27	.83	1.41	2.50	36.41
Q	.11	0	0	0	T	0	.17	0	T	0	0	0	.28
1950 P	7.73	3.20	2.05	3.70	3.98	1.97	6.16	1.59	6.18	1.56	5.54	2.04	45.70
Q	.41	.04	0	.01	.02	0	T	T	2.08	0	T	.40	2.96
1951 P	3.89	2.55	4.38	2.96	2.33	5.48	2.58	.56	2.98	1.38	4.24	4.03	37.36
Q	.45	.46	.02	0	T	T	T	0	0	0	0	.08	1.01
1952 P	5.97	2.27	3.14	3.86	3.49	2.85	3.61	2.10	2.28	.72	1.54	2.35	34.18
Q	1.87	.43	.04	0	0	0	.05	T	0	0	0	0	2.39
1953 P	4.43	1.12	2.19	1.86	4.19	2.28	4.74	1.91	.94	.50	.80	1.88	26.84
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1954 P	2.00	1.60	3.12	2.77	2.38	2.49	3.47	3.13	1.39	5.75	1.21	2.25	31.56
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1955 P	1.12	2.94	4.75	3.49	1.25	2.53	3.75	3.27	2.35	2.06	3.24	.20	30.95
Q	0	0	.33	.01	0	0	0	0	0	0	0	0	.34
P													
Q													
P													
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P													
Q													
** Av. P	2.75	2.01	3.32	3.00	4.07	4.17	3.96	2.99	2.81	2.18	2.42	2.06	35.74
** Av. Q	.23	.19	.23	.12	.15	.34	.14	.28	.25	.02	.03	.05	2.03
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

**Notes:** \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - excellent.



11-55

COSHOCTON, OHIO Watershed 124

LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 2.07 ac.

SHAPE: Roughly fan shape; 500 ft. radius; length of arc - 250ft.

SLOPES: 27% is in 6-12% class; 73% in 12-18%. Aspect W.

SOILS: Residual; developed from shale; topsoil - silt loam texture, crumb structure, depth 6-7 in.; subsoil - moderately slow permeability, internal drainage - medium, no impeding layer. Keene (shallow phase) silt loam (formerly Coshocton) - 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 27%; IV - 73%.

SURFACE DRAINAGE: Good; principal waterway - 550 ft.; a natural watershed with surface flow to a system of small gullies forming a distinct drainage pattern; natural boundaries.

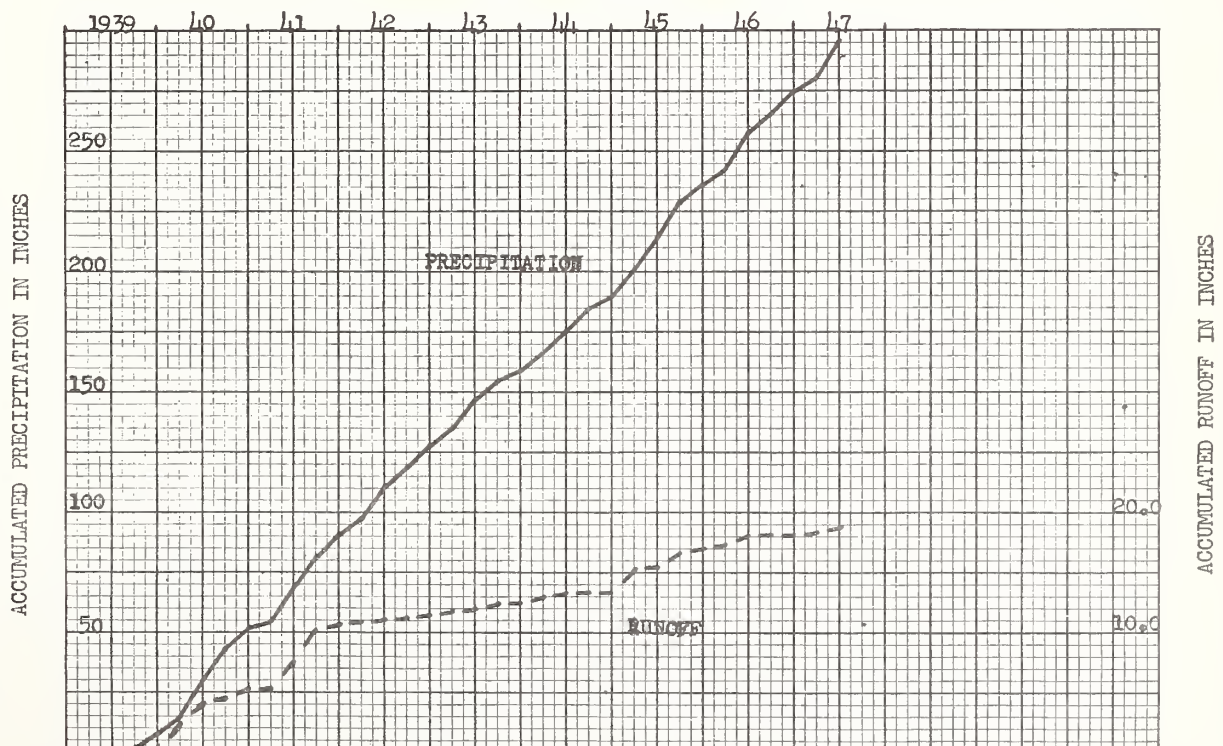
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal type H flume, 2.5 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1939-40 poverty grass pasture; 1941-46 contour strips of corn and meadow (1941) wheat and meadow (1942), meadow and corn (1943), meadow and wheat (1944) and etc. in a 4-yr. rotation; yields fair throughout period; manure and lime used for corn, manure for wheat.

GENERALLY REPRESENTS: Contour strips in 4-yr. rotation on keene silt loam (shallow phase) soil with medium internal drainage, good surface drainage, moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshooton, Ohio Watershed 124

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q									1.05 0	4.46 .12	0.56 0	1.38 0	7.45 .12
1940 P Q	1.25 .16	2.80 *1.30	3.27 .99	4.59 .67	4.58 .14	6.72 .78	3.46 .05	6.74 .43	1.94 T	1.09 0	4.29 .24	3.15 .36	43.88 5.12
1941 P Q	1.74 .01	.33 0	.90 .02	.91 0	6.62 .98	7.22 1.24	5.14 1.32	5.63 *1.26	1.44 .12	5.99 .44	1.58 .04	1.84 * .10	39.34 5.53
1942 P Q	1.48 .02	1.93 .03	3.41 .10	2.27 .03	4.74 .07	6.39 .18	2.48 .05	2.66 0	2.85 0	2.17 0	2.68 0	3.53 * .36	36.59 .84
1943 P Q	2.14 .04	1.57 .02	4.25 .24	2.91 T	6.62 .12	2.20 .01	3.65 .09	3.70 .34	.40 T	1.81 0	1.42 0	.94 T	31.61 .86
1944 P Q	.93 .09	1.57 0	5.37 .46	3.68 .22	2.19 0	3.27 0	2.22 0	5.00 .02	1.91 T	1.69 T	.93 0	*2.39 0	31.15 .79
1945 P Q	.99 0	2.46 .22	8.02 1.80	4.26 .05	4.71 .19	3.67 T	2.32 0	1.21 0	10.69 1.24	2.53 .10	3.58 .07	1.80 .10	46.24 3.77
1946 P Q	.74 0	4.01 .35	2.21 T	1.68 0	5.65 T	7.27 .80	4.65 .01	2.41 0	.65 0	4.14 0	2.54 0	2.34 T	38.29 1.16
1947 P Q	5.09 .27	.37 0	.78 0	4.00 0	5.73 .06	5.72 .26							21.69 .59
P													
Q													
P													
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P													
Q													
P													
Q													
P													
Q													
P													
Q													
**Av. P **Av. Q	1.32 .05	2.10 .27	3.92 .52	2.90 .14	5.02 .21	5.25 .43	3.42 .22	3.91 .29	2.84 .19	2.77 .08	2.43 .05	2.28 .13	38.16 2.58
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939 and 1947. Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio. Quality of records: P - good; Q - good.

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COSHOCTON, OHIO Watershed 185

LOCATION: Coshocton, Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 7.40 ac.

SHAPE: Roughly square, about 570 ft. sides.

SLOPES: 19% is in 6-12% class; 81% in 12-18%. Aspect S.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, rapid internal drainage, no impeding layer. Muskingum silt loam - 90%; Keene silt loam - 10%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Good; length of principal waterway - 650 ft.; a natural watershed with surface flow to a system of well defined waterways; earth dike boundary.

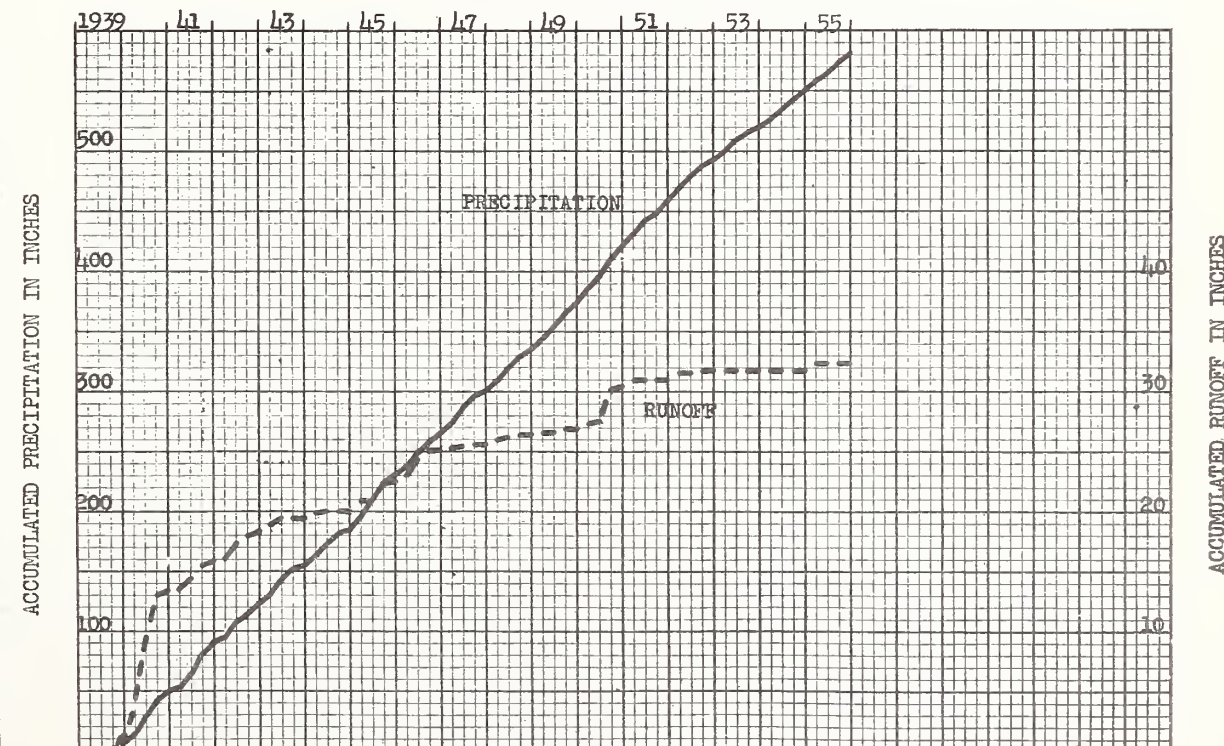
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H flume, 4.5 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 - meadow; 1942 - conservation practice on corn to wheat; 1943 - wheat to meadow; 1944 to 1945 - meadow; 1946 - strip cropping on 4-yr. rotation of corn, wheat, 2 yrs. of meadow, rotation starting with corn and meadow strips. Data comparable with those of Watersheds 187 (conservation practice) and 192 (prevailing practice).

GENERALLY REPRESENTS: Conservation practice on cropland areas of Muskingum silt loams with rapid internal drainage, good surface drainage, moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 185

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P									1.05	4.46	0.56	1.37	7.44
Q									0	1.28	0	.02	1.30
1940 P	1.27	2.28	3.30	4.20	4.37	7.26	3.58	6.88	2.09	1.08	3.95	3.27	43.53
Q	.50	1.40	1.20	1.10	.87	3.30	1.08	2.09	.20	0	.25	.14	12.13
1941 P	1.34	.33	.89	.98	6.78	7.19	5.75	5.97	1.46	5.65	1.53	1.79	39.66
Q	T	T	.07	0	.40	.40	.63	.56	.01	.18	.12	.12	2.49
1942 P	1.28	1.92	3.30	1.80	4.64	4.68	2.52	2.41	2.58	2.06	2.49	3.43	33.11
Q	.02	.06	.08	.20	.60	.48	.52	.10	.03	0	T	.28	2.37
1943 P	2.16	1.72	3.95	2.65	7.28	2.29	3.57	4.12	.46	1.61	1.58	.89	32.28
Q	.06	.08	.56	T	.48	0	0	.01	0	0	0	.14	1.33
1944 P	.97	1.14	5.33	3.82	2.15	3.18	2.56	4.92	1.72	1.62	.97	2.01	30.69
Q	.17	0	.15	.10	0	0	0	T	T	T	0	0	.42
1945 P	.84	2.38	7.76	4.27	4.55	3.48	2.36	1.34	10.49	2.31	3.38	1.54	44.70
Q	0	.09	.81	.02	.10	0	0	0	1.44	0	.06	.19	2.71
1946 P	.69	3.92	2.05	1.51	4.93	6.20	5.08	2.34	.62	4.08	2.36	2.29	36.07
Q	0	.29	T	0	.02	1.43	.61	T	0	0	T	T	2.35
1947 P	4.78	.31	.68	3.64	5.82	5.44	2.52	4.24	2.44	.86	2.20	1.02	33.95
Q	.15	0	0	0	.10	.04	0	.24	0	0	0	0	.53
1948 P	1.84	2.56	3.83	4.28	2.96	4.46	3.00	1.04	3.42	2.36	2.52	2.01	34.28
Q	T	.39	.02	.16	0	.02	.15	0	0	0	0	T	.74
1949 P	4.77	2.40	3.28	2.33	2.80	3.63	7.49	1.98	3.28	.85	1.47	2.68	36.96
Q	.20	.07	.08	0	T	T	.18	0	0	0	0	0	.53
1950 P	8.65	3.46	2.30	4.17	4.08	2.00	6.36	1.77	6.24	1.54	5.56	2.21	48.34
Q	.34	.07	T	.04	.32	T	.22	.01	2.32	0	.01	.15	3.48
1951 P	4.23	2.33	4.43	3.03	2.37	5.30	2.58	.50	2.97	1.44	4.44	4.12	37.74
Q	.04	.50	.06	T	0	0	0	0	0	0	0	.03	.63
1952 P	6.19	2.30	3.08	3.92	3.62	2.80	3.47	2.01	2.32	.73	1.58	2.38	34.40
Q	.64	.03	.01	T	0	.01	.13	T	0	0	0	0	.82
1953 P	4.69	1.24	2.54	1.89	4.09	1.99	4.86	1.83	.91	.49	.95	1.88	27.36
Q	T	0	0	0	T	0	0	0	0	0	0	0	T
1954 P	2.29	1.72	3.34	3.01	2.11	1.99	3.19	3.01	1.38	5.47	1.13	2.21	30.85
Q	0	0	T	0	0	0	0	0	0	0	0	0	T
1955 P	1.01	2.56	4.54	3.48	1.27	2.37	3.73	2.98	2.35	2.01	3.27	.24	29.81
Q	0	.30	.24	0	0	0	0	0	0	0	0	0	.54
P													
Q													
P													
Q													
P													
Q													
**Av. P	2.94	2.05	3.41	3.06	3.99	4.02	3.91	2.96	2.80	2.14	2.46	2.11	35.85
**Av. Q	.13	.20	.21	.10	.18	.35	.22	.19	.25	.01	.03	.07	1.94
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - good.

LOCATION: Coshockton Co., Ohio; 10 mi. NE of Coshockton; Walhonding River, Muskingum River Basin.

AREA: 7.20 ac.

SHAPE: Roughly trapezoidal, width - 580 ft., length - 650 ft.

SLOPES: 44% is in 6-12% class; 42% in 12-18%; 14% in 18-25%. Aspect E.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam texture; moderate fine crumb structure, 6-8 in. deep; subsoil - moderately slow permeability, medium internal drainage, no impeding layer. Keene (shallow phase) silt loam - 60%; Keene silt loam - 20%; Muskingum silt loam - 20%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 86%; IV - 14%.

SURFACE DRAINAGE: Good; length of principal waterway - 780 ft.; a natural watershed with surface flow to a system of well defined waterways; earth dike boundary.

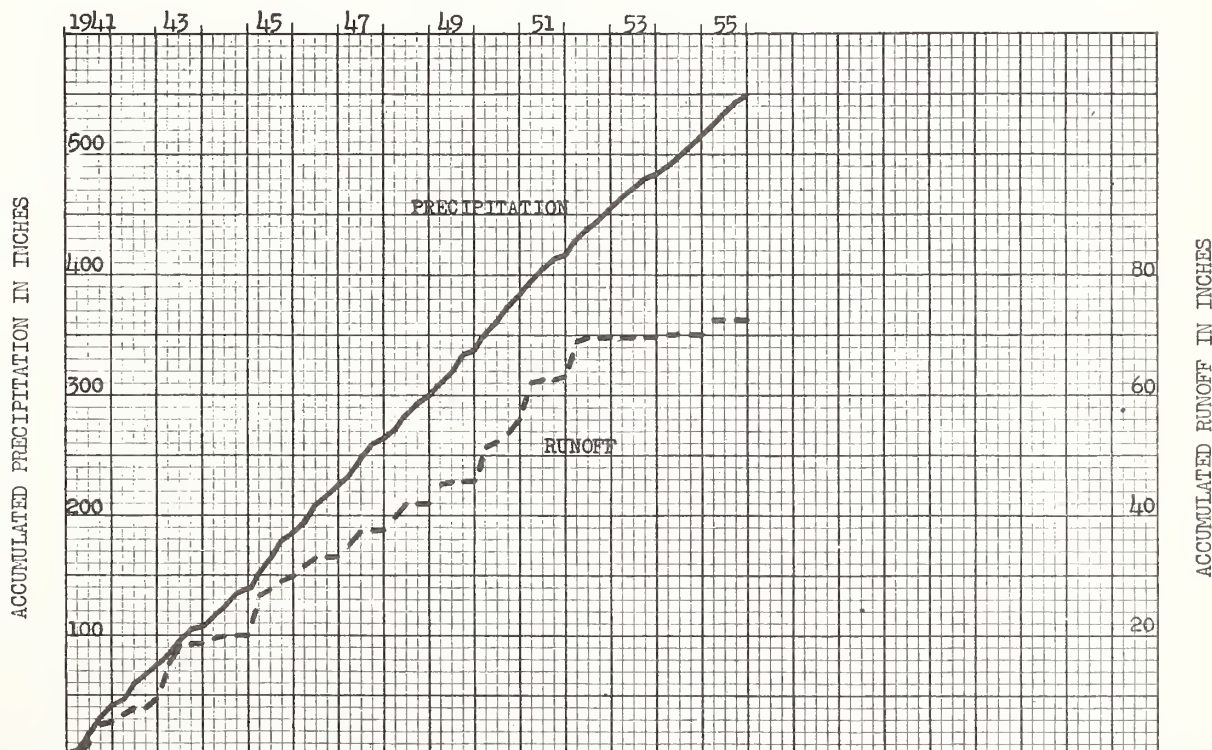
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H flume, 4.5 ft. deep, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; conservation practice started in 1941 with contour strips of oorn and meadow in 4-yr. rotation of corn, wheat, and 2 yrs. meadow. Data comparable with those of Watersheds 185 (conservation practice) and 192 (prevailing practice).

GENERALLY REPRESENTS: Conservation practice on cropland areas of Keene, Muskingum, and associated silt loams with medium internal drainage, good surface drainage, moderate erosion, found on gently rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 187

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P Q	1.74 .04	0.37 .06	1.12 .08	1.01 0	6.90 .97	7.04 1.35	5.98 1.98	6.14 .97	1.53 T	5.92 T	1.39 .03	1.86 .23	41.09 5.71
1942 P Q	1.46 .20	1.85 .30	3.20 .30	2.12 1.28	4.56 .06	5.85 .04	2.69 T	2.42 0	2.77 0	2.15 0	2.58 0	3.43 1.60	35.08 3.78
1943 P Q	2.02 2.32	1.60 .34	3.96 3.30	2.63 .43	7.03 1.15	2.20 1.33	3.40 .01	4.08 .20	.41 0	1.71 0	1.46 0	.85 T	31.35 9.08
1944 P Q	.95 .11	1.52 .04	5.50 .72	3.58 .46	2.18 0	3.29 0	2.55 0	5.33 .01	1.91 T	1.71 T	1.03 0	2.49 0	32.04 1.34
1945 P Q	1.06 0	2.57 1.06	8.46 5.62	4.45 .14	4.84 .79	3.76 .02	2.49 T	1.44 T	11.01 1.42	2.60 .47	3.44 .43	1.74 .26	47.86 10.21
1946 P Q	.72 .02	3.90 .81	2.29 .69	1.80 0	5.85 .02	7.81 1.52	5.02 .07	2.30 0	.73 0	4.44 0	2.56 0	2.24 .06	39.66 3.19
1947 P Q	5.29 1.54	.40 .27	.76 0	4.16 .35	5.42 1.17	6.04 .91	2.92 .01	4.24 .08	3.07 0	.93 0	2.41 0	1.08 0	36.72 4.33
1948 P Q	1.80 .07	2.40 1.06	3.88 1.04	4.45 2.20	3.53 .01	4.82 0	3.53 T	1.09 0	3.63 0	2.67 0	2.71 0	1.99 T	36.50 4.38
1949 P Q	4.57 1.88	2.43 .94	3.19 .46	2.25 .16	2.73 T	4.06 0	7.83 .29	2.20 0	3.48 0	1.03 0	1.41 0	2.50 0	37.68 3.73
1950 P Q	7.73 3.92	3.20 1.39	2.05 .25	3.70 .62	4.32 .30	2.03 0	6.10 0	1.64 0	6.04 1.57	1.51 0	5.54 .10	2.04 2.25	45.90 10.40
1951 P Q	3.89 2.26	2.55 2.57	4.38 1.19	2.96 .44	2.45 0	5.62 .05	2.81 .03	.64 0	3.13 0	1.46 0	1.54 0	2.35 .66	33.78 7.20
1952 P Q	5.97 3.97	2.27 1.20	3.14 .62	3.86 .60	3.57 T	3.07 0	3.75 0	2.01 0	2.27 0	.78 0	4.24 0	4.03 0	38.96 6.39
1953 P Q	4.43 .08	1.12 0	2.19 .02	1.86 0	4.26 .01	2.26 0	4.94 0	1.87 .01	.97 0	.53 0	.80 0	1.88 0	27.11 .12
1954 P Q	2.00 0	1.60 0	3.12 .16	2.77 .02	2.43 0	2.82 0	3.67 0	3.24 0	1.61 0	6.00 0	1.29 0	2.43 .01	32.98 .19
1955 P Q	1.20 0	3.18 .83	4.98 1.64	3.71 T	1.22 0	2.63 0	3.80 0	3.48 0	2.39 0	2.13 0	3.32 .01	.22 0	32.26 2.48
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	2.99 1.09	2.06 .72	3.48 1.07	3.02 .45	4.09 .30	4.22 .35	4.10 .16	2.81 .08	3.00 .20	2.37 .03	2.38 .04	2.08 .34	36.60 4.83
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records:  
P - excellent; Q - excellent.

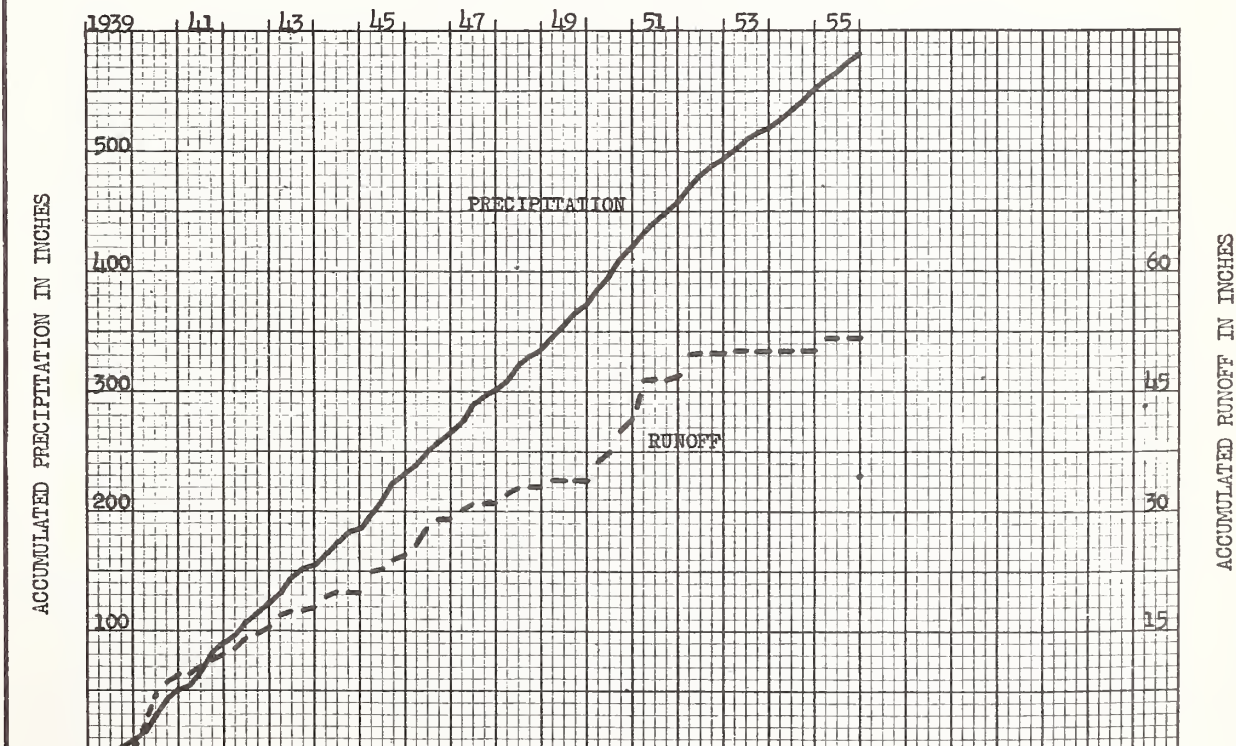


1-56

## COSHOCTON, OHIO Watershed 192

LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.AREA: 7.59 ac.SHAPE: Roughly square, about 570 ft. sides.SLOPES: 7% is in 6-12% class; 75% in 12-18%; 18% in 18-25%. Aspect N.SOILS: Residual; developed from shale and sandstone; topsoil - silt loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, rapid internal drainage, no impeding layer. Muskingum silt loam - 90%; Keene silt loam - 10%.EROSION: 2 - 100%.LAND CAPABILITY: III - 82%; IV - 18%.SURFACE DRAINAGE: Good; length of principal waterway - 720 ft.; a natural watershed with surface flow to a system of well defined waterways; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - type H flume, 4.5 ft. deep, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated, prevailing practice; 1938 - corn; 1939 - oats to wheat; 1940 - wheat to meadow; 1941 - meadow; 1942 - corn in 4-yr. rotation of corn, wheat, and 2 yrs. of meadow. Data comparable with those of Watersheds 185 and 187 (conservation practice).GENERALLY REPRESENTS: Prevailing practice on cropland areas of Muskingum silt loam with rapid internal drainage, good surface drainage, moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 192

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q									1.05 0	4.46 0	0.56 0	1.37 0	7.44 0
1940 P Q	1.27 .55	2.28 1.48	3.30 1.25	4.20 .95	4.37 .54	7.26 2.38	3.58 .44	6.88 1.00	2.09 .09	1.08 0	3.95 .39	3.27 .42	43.53 9.49
1941 P Q	1.34 .03	.33 .05	.89 0	.98 0	6.78 .40	7.19 .57	5.75 .69	5.97 .37	1.46 .01	5.65 .24	1.53 .15	1.79 .22	39.66 2.73
1942 P Q	1.28 .18	1.92 .37	3.30 .12	1.80 .25	4.64 .21	4.68 .82	2.52 .51	2.41 .09	2.58 .01	2.06 0	2.49 .01	3.43 .74	33.11 3.31
1943 P Q	2.16 .28	1.72 .21	3.95 .96	2.65 .03	7.28 .69	2.29 .06	3.57 0	4.12 .03	.46 0	1.61 0	1.58 0	.89 .14	32.28 2.40
1944 P Q	.97 .31	1.44 .48	5.33 .66	3.82 .49	2.15 0	3.18 0	2.56 0	4.92 T	1.72 0	1.62 0	.97 0	2.01 0	30.69 1.94
1945 P Q	.84 0	2.38 .65	7.76 1.94	4.27 .14	4.55 .24	3.48 0	2.36 0	1.34 0	10.49 1.03	2.31 .15	3.38 .17	1.54 .28	44.70 4.60
1946 P Q	.69 0	3.92 .83	2.05 .57	1.51 0	4.93 .14	6.20 2.15	5.08 .81	2.34 .04	.62 0	4.08 T	2.36 T	2.29 .10	36.07 4.64
1947 P Q	4.78 1.08	.31 T	.68 .01	3.64 .07	5.82 .35	5.44 .31	2.52 .02	4.24 .15	2.44 0	.86 0	2.20 0	1.02 0	33.95 1.99
1948 P Q	1.84 .12	2.56 .70	3.83 .34	4.28 .80	2.96 .04	4.46 0	3.00 0	1.04 0	3.42 0	2.36 0	2.52 0	2.01 .01	34.28 2.01
1949 P Q	4.77 .50	2.40 .21	3.28 .18	2.33 0	2.80 0	3.63 0	7.49 .01	1.98 0	3.28 0	.85 0	1.47 0	2.68 .04	36.96 .94
1950 P Q	8.65 1.77	3.46 .31	2.30 .11	4.17 .26	4.08 .88	2.00 .06	6.36 .65	1.77 .09	6.24 2.04	1.54 0	5.56 .19	2.21 1.31	48.34 7.67
1951 P Q	4.23 1.23	2.33 3.23	4.43 .31	3.03 .07	2.37 T	5.30 .02	2.58 T	.50 0	2.97 0	1.44 0	4.44 .02	4.12 .43	37.74 5.31
1952 P Q	6.19 2.00	2.30 .38	3.08 .25	3.92 .20	3.62 T	2.80 0	3.47 0	2.01 0	2.32 0	.73 0	1.58 0	2.38 0	34.40 2.83
1953 P Q	4.69 .16	1.24 .01	2.54 .01	1.89 T	4.09 .04	1.99 0	4.86 0	1.83 0	.91 0	.49 0	.95 0	1.88 0	27.36 .22
1954 P Q	2.29 0	1.72 T	3.34 .16	3.01 .01	2.11 0	1.99 0	3.19 T	3.01 T	1.38 0	5.47 .04	1.13 0	2.21 .08	30.85 .29
1955 P Q	1.01 .02	2.56 .55	4.54 .77	3.48 .07	1.27 0	2.37 0	3.73 0	2.98 0	2.35 0	2.01 0	3.27 .01	.24 0	29.81 1.42
P Q													
P Q													
P Q													
**Av. P **Av. Q	2.94 .51	2.05 .59	3.41 .48	3.06 .21	3.99 .22	4.02 .40	3.91 .20	2.96 .11	2.80 .20	2.14 .03	2.46 .06	2.11 .24	35.85 3.25
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - excellent; Q - good.



LOCATION: Coshockton Co., Ohio; 10 mi. NE of Coshockton; Walhonding River, Muskingum River Basin.

AREA: 43.6 ac.

SHAPE: Roughly rectangular, width - 1,200 ft., length - 1,800 ft.

SLOPES: 2% is in 2-6% class; 7% in 6-12%; 20% in 12-18%; 35% in 18-25%; 36% in 25-35%. Aspect S.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam to loam texture, moderate fine to medium crumb structure, 7-8 in. deep; subsoil - moderate permeability, medium internal drainage, heavy layer at 14-24 in. somewhat restricts drainage. Keene silt loam - 41%; Muskingum silt loam - 37%; Muskingum loam - 10%; mixed silt loams - 12%.

EROSION: 2 - 27%; 3 - 73%.

LAND CAPABILITY: III - 29%; IV - 35%; VI - 36%.

SURFACE DRAINAGE: Good; length of principal waterway - 2,100 ft.; a natural watershed with surface flow to one main channel with no major divisions or tributaries; natural boundary.

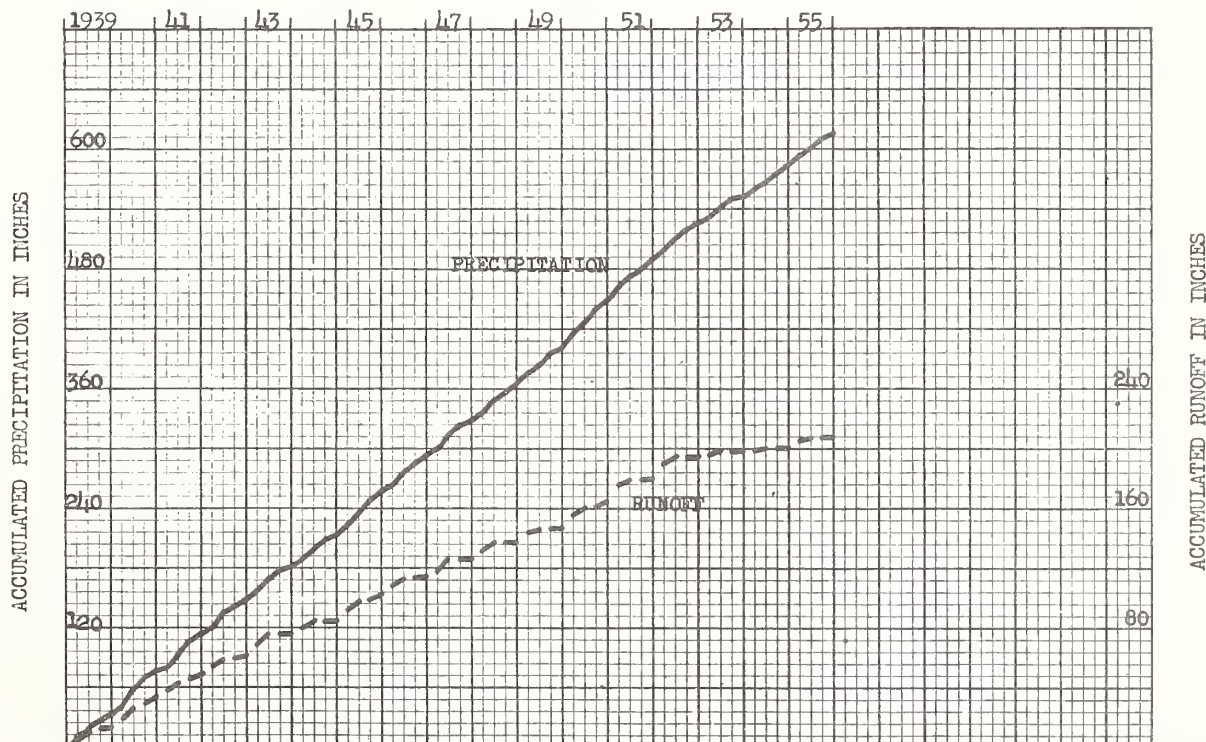
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete dual Parshall flume, 4.0 ft. wide, supplemental Parshall flume, 0.5 ft. wide, 2 FW-1 recorders; precipitation - recording gage.

WATERSHED CONDITIONS: East one-third in uneven age stand of hardwoods; west two-thirds in poverty grass and brush; reforested to pines in 1938; cover completely established by 1945; Watersheds 131 and 132 lie within the east one-third; Watershed 134 lies just west of the west boundary and is typical of the reforested west two-thirds.

GENERALLY REPRESENTS: Mixed pine and hardwood woodland areas of Keene, Muskingum, and associated silt loams with medium internal drainage, good surface drainage, moderate to severe erosion, found on hilly to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Coshocton, Ohio Watershed 172

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P		3.92	3.44	3.78	1.17	6.12	6.22	1.34	1.04	5.14	0.51	1.48	34.16
Q		3.96	3.10	3.57	.31	.93	1.35	.05	.07	.17	.21	.32	14.04
1940 P	1.11	2.39	3.10	4.08	4.41	7.97	4.00	7.47	1.83	1.04	3.53	2.84	43.77
Q	.38	.47	3.57	4.49	1.46	2.96	.68	.97	.57	.47	1.70	2.32	20.04
1941 P	*1.48	.23	.79	.63	7.06	6.76	5.82	4.94	1.39	5.48	1.44	1.60	37.62
Q	1.58	1.30	1.16	.49	2.49	2.11	1.95	.54	.15	.92	1.03	1.06	14.78
1942 P	1.35	1.90	3.59	1.96	4.88	5.55	2.33	2.79	2.52	2.24	2.65	3.56	35.32
Q	.89	1.47	2.82	2.33	1.72	.93	.22	.11	.16	.12	.30	1.98	13.05
1943 P	2.05	1.75	3.75	2.52	6.77	2.51	3.85	3.67	.38	1.65	1.44	.83	31.17
Q	2.00	1.42	3.87	2.00	3.85	1.03	.07	.12	.01	.03	.04	.05	14.49
1944 P	.90	1.26	5.21	3.52	2.25	3.57	2.40	4.67	1.98	1.64	1.07	2.67	31.14
Q	.15	.20	3.23	2.89	.56	.13	.07	.04	.05	.07	.01	.06	7.46
1945 P	1.10	2.31	8.09	4.29	4.74	3.47	2.63	1.07	9.51	2.68	3.38	1.46	44.73
Q	.05	1.64	6.71	2.28	2.98	.34	.03	T	.88	.81	1.46	1.44	18.62
1946 P	.67	3.85	2.17	1.44	5.37	5.87	4.83	2.33	.66	4.01	2.47	2.24	35.91
Q	.75	2.81	1.99	.53	1.85	2.44	.22	.04	T	.09	.15	.65	11.52
1947 P	5.02	.38	.80	3.65	5.96	5.39	2.49	3.72	2.81	.84	2.50	1.10	34.66
Q	3.09	.51	.61	2.44	3.64	2.31	.12	.08	.08	.02	.11	.09	13.10
1948 P	1.73	2.67	4.33	4.95	3.39	4.34	3.37	.86	3.39	2.69	2.75	2.07	36.54
Q	.26	1.47	2.91	4.01	1.56	.06	.03	T	.01	.05	.11	.19	10.66
1949 P	4.86	2.56	3.57	2.43	2.96	2.84	7.39	2.41	3.33	.86	1.21	2.49	36.91
Q	2.22	1.96	2.42	1.61	.60	.05	.20	.02	.03	.02	.03	.09	9.25
1950 P	8.39	3.44	2.21	3.98	4.04	1.99	6.92	2.35	5.47	1.44	5.91	2.42	48.56
Q	3.66	3.14	1.97	2.55	1.98	.18	.21	.01	1.14	.04	.45	2.86	18.19
1951 P	4.23	3.09	4.58	2.99	2.24	5.48	2.79	.54	2.89	1.79	4.64	3.98	39.24
Q	3.26	3.58	3.92	2.48	.54	.22	.06	T	.01	.02	.09	1.18	15.36
1952 P	5.83	2.48	3.17	3.96	4.18	2.72	3.86	1.93	2.57	.78	1.66	2.14	35.28
Q	4.83	2.50	2.48	2.84	1.06	.10	.03	T	T	T	.01	.04	13.89
1953 P	4.49	1.15	2.81	2.20	4.06	2.18	5.36	1.53	1.04	.61	.90	2.07	28.40
Q	.44	.20	1.04	1.04	1.63	.02	.02	T	T	T	T	.02	4.41
1954 P	2.34	1.71	3.21	2.91	2.10	1.86	3.27	3.19	1.20	5.75	1.30	2.45	31.29
Q	.02	.01	.56	.88	.53	T	T	0	0	.03	T	.26	2.29
1955 P	1.15	3.00	4.49	3.55	1.60	2.61	3.91	2.99	2.36	2.05	3.07	.22	31.00
Q	.08	1.34	3.51	1.56	.18	T	.01	T	T	.01	.04	T	6.73
P													
Q													
P													
Q													
P													
Q													
**Av. P	2.92	2.14	3.49	3.07	4.13	4.07	4.08	2.90	2.71	2.22	2.49	2.13	36.35
**Av. Q	1.48	1.50	2.67	2.15	1.66	.80	.24	.12	.19	.17	.35	.77	12.10
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

**Notes:** \*Partially estimated. \*\*Does not include the part year amounts for 1939. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - good; Q - good.

LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 29.0 ac.

SHAPE: Roughly leaf shape, width - 1,200 ft., length - 1,700 ft.

SLOPES: 9% is in 6-12% class; 73% in 12-18%; 15% in 18-25%; 3% in 25-35%. Aspect SW.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam to loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Mixed silt loams - 37%; Keene silt loam - 26%; Muskingum silt loam - 16%; Muskingum loam - 21%.

EROSION: 2 - 40%; 3 - 60%.

LAND CAPABILITY: III - 82%; IV - 18%.

SURFACE DRAINAGE: Good; length of principal waterway - 1,900 ft.; a natural watershed with surface flow to one main channel with with no major divisions or tributaries; natural boundary.

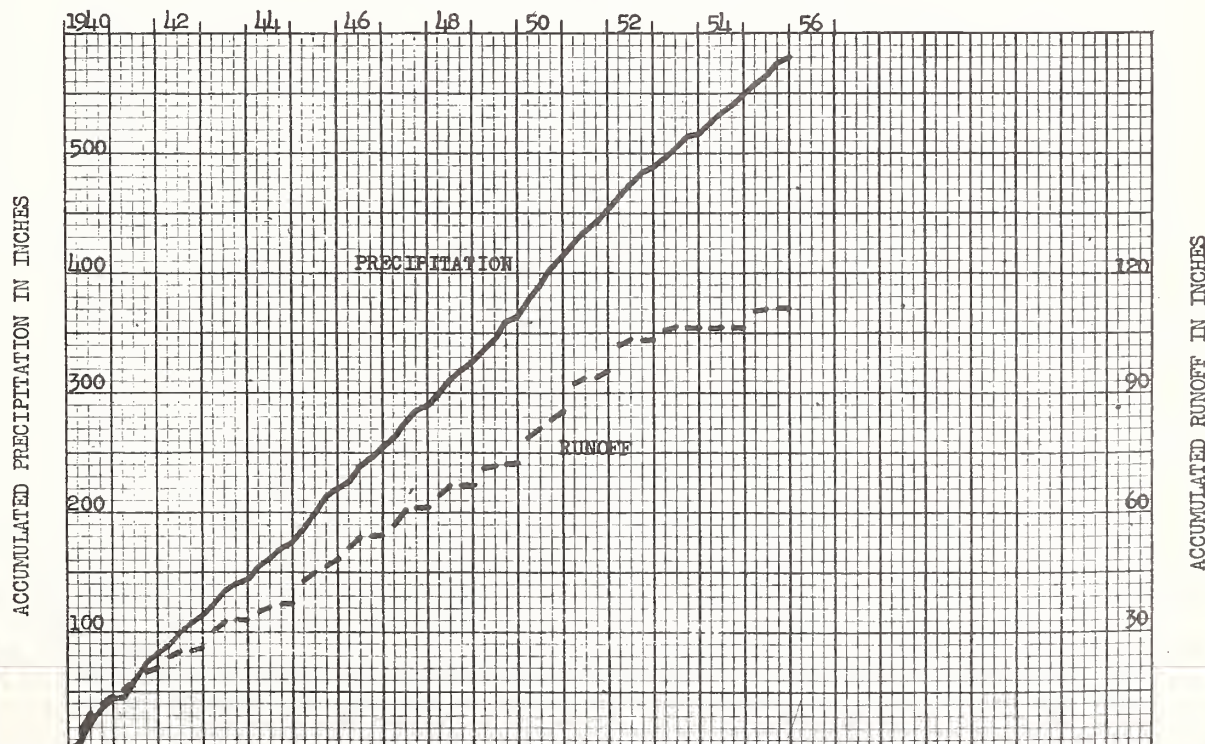
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete dual Parshall flume, 4.0 ft. wide, supplemental sheet metal type H Flume, 1.0 ft. deep, 2 FW-1 recorders; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover; in 1940, woods - 6%; grassland - 53%; cultivated - 34%; miscellaneous - 7%; in 1957, woods - 6%; reforested - 6%; grassland - 48%; cultivated - 34%; miscellaneous - 6%; conservation program of contour strip cropping started in 1943. Watershed 121 lies within the northern boundary of this watershed.

GENERALLY REPRESENTS: Conservation practice on mixed cover areas of Muskingum, Keene, and associated silt loams and loam with medium internal drainage, good surface drainage, moderate to severe erosion, found on rolling to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Coshooton, Ohio Watershed 169

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P	1.27	2.28	3.30	4.20	4.37	7.26	3.58	6.88	2.09	1.08	3.95	3.27	43.53
Q	.33	1.54	2.66	2.82	.42	2.22	.71	1.39	.11	.02	.48	1.22	13.92
1941 P	1.34	.33	.90	*.98	6.78	7.19	5.75	5.97	1.46	5.65	1.53	1.79	39.66
Q	.65	.38	.31	.05	1.26	1.43	1.23	1.01	.07	.19	.27	.35	7.20
1942 P	1.28	*1.92	3.30	1.80	4.64	4.68	2.52	2.41	2.58	2.06	2.49	*3.43	33.11
Q	.34	.89	1.50	.85	.27	.26	.09	0	0	0	.02	1.05	5.27
1943 P	1.87	1.28	3.72	2.61	6.51	1.84	3.44	3.74	.31	1.63	1.34	.86	29.15
Q	1.12	.61	2.39	.40	1.62	.44	.01	.21	0	0	0	.06	6.86
1944 P	.91	1.31	5.30	3.66	2.08	3.13	2.66	4.98	1.85	1.61	.99	2.14	30.62
Q	.16	T	1.50	1.37	.07	.08	.01	.41	.07	.05	0	T	3.72
1945 P	.79	2.28	8.16	4.25	4.69	3.69	2.48	1.39	10.27	2.36	3.33	1.34	45.03
Q	.01	1.20	4.90	.80	1.01	.13	T	0	1.59	.45	.78	.48	11.35
1946 P	.59	3.70	1.99	1.48	5.03	6.21	5.21	2.16	.58	4.03	2.38	2.06	35.42
Q	.29	1.83	.96	.07	.34	1.88	.71	.03	T	.03	.03	.13	6.30
1947 P	4.78	.31	.68	3.64	6.02	5.63	2.62	4.20	2.67	.96	2.11	1.02	34.64
Q	1.88	.10	.22	.88	1.76	1.32	.07	.42	.02	0	T	.02	6.69
1948 P	1.84	2.56	3.84	4.28	3.31	4.85	3.44	1.08	3.35	2.55	2.63	2.01	35.74
Q	.19	1.45	1.33	2.31	.43	.11	.06	0	0	T	T	.05	5.93
1949 P	4.77	2.40	3.28	2.33	3.09	3.61	7.93	2.28	3.73	.86	1.47	2.68	38.43
Q	1.60	1.35	1.14	.49	.10	.02	.55	.01	.02	0	0	.03	5.31
1950 P	8.65	3.46	2.30	4.17	4.14	2.21	7.06	1.81	6.14	1.47	5.56	2.21	49.18
Q	3.52	1.87	1.15	1.37	.80	.09	.21	T	2.04	0	.29	1.69	13.03
1951 P	4.23	2.33	4.43	3.03	2.52	5.82	2.77	.37	2.96	1.56	4.44	4.12	38.58
Q	2.46	2.34	2.26	1.16	.12	.11	.01	0	T	0	.05	1.63	10.14
1952 P	6.19	2.30	3.08	3.92	3.82	3.03	3.89	2.17	2.54	.75	1.58	2.38	35.65
Q	3.65	1.58	1.09	1.24	.25	.05	.12	T	T	0	0	0	7.98
1953 P	4.69	1.24	2.54	1.89	4.28	2.09	5.56	1.83	1.09	.55	.95	1.88	28.59
Q	.47	.27	.42	.42	.53	.03	.03	.01	0	0	0	0	2.18
1954 P	2.29	1.72	3.34	3.01	2.31	2.31	3.41	3.10	1.24	5.82	1.19	2.38	32.12
Q	.01	.01	.32	.23	.18	T	T	T	0	.08	0	.11	.94
1955 P	1.08	2.96	4.73	3.63	1.36	2.45	3.97	3.12	2.39	2.07	3.23	.19	31.18
Q	.10	1.70	2.02	.52	.04	0	.02	T	T	0	.13	0	4.53
P													
Q													
P													
Q													
P													
Q													
Av. P	2.91	2.02	3.43	3.06	4.06	4.12	4.14	2.97	2.83	2.19	2.45	2.11	36.29
Av. Q	1.05	1.07	1.51	.94	.57	.51	.24	.22	.24	.05	.13	.43	6.96
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \* Partially estimated. Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio.  
 Quality of records: P - good; Q - good.



LOCATION: Coshocton Co., Ohio: 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 75.6 ac.

SHAPE: Roughly triangular, base - 1,900 ft., height - 2,700 ft.

SLOPES: 3% is in 2-6% class; 20% in 6-12%; 55% in 12-18%; 17% in 18-25%; 5% in 25-35%. Aspect S.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam to loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Muskingum silt loam - 35%; Keene silt loam - 24%; Muskingum loam - 20%; Keene (shallow phase) silt loam - 16%; mixed silt loams - 5%.

EROSION: 2 - 73%; 3 - 27%.

LAND CAPABILITY: III - 78%; IV - 17%; VI - 5%.

SURFACE DRAINAGE: Good; length of principal waterway - 2,800 ft.; a natural watershed with surface flow to one main channel with no major division or tributaries; natural boundary.

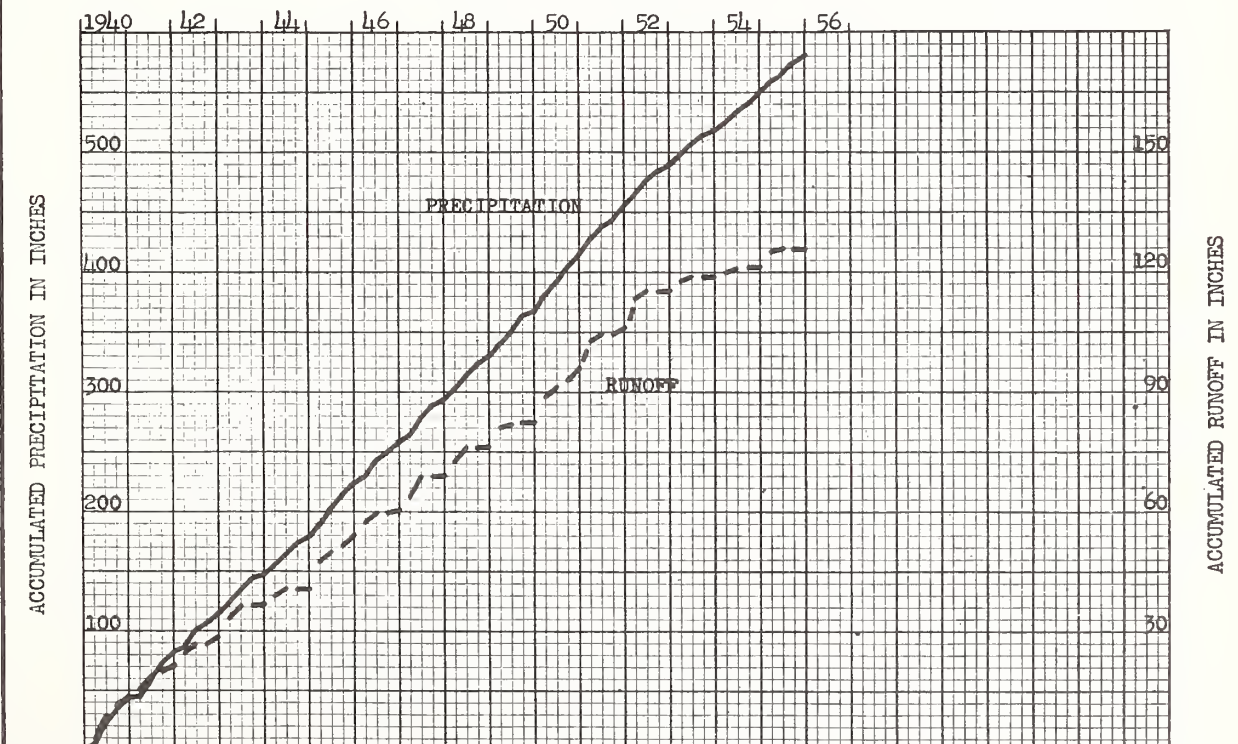
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete dual Parshall flume, 8.0 ft. wide, supplemental sheet metal type H flume, 1.5 ft. deep, 2 FW-1 recorders; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover; in 1940, woods - 9%; grassland - 55%; cultivated - 24%; idle - 2%; miscellaneous - 10%; in 1957, woods - 4%; reforested - 6%; grassland - 67%; cultivated - 17%; miscellaneous - 6%; conservation program of contour strip cropping started in 1943. Watersheds 129, 130, and 135 lie within the boundary of this watershed.

GENERALLY REPRESENTS: Conservation practice on mixed cover areas of Muskingum, Keene, and associated silt loams and loams with medium internal drainage, good surface drainage, moderate to severe erosion, found on rolling to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Coshocton, Ohio Watershed 177

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P Q	1.11 0	2.39 1.06	3.10 1.94	4.08 2.94	4.41 .31	7.97 2.54	4.00 .81	7.47 1.22	1.83 .20	1.04 0	3.53 .65	2.84 1.57	43.77 13.24
1941 P Q	*1.48 .96	.23 .68	.79 .61	.63 .06	7.06 1.18	6.76 1.61	5.82 1.66	4.94 .37	1.39 T	5.48 .24	1.44 .46	1.60 .50	37.62 8.33
1942 P Q	1.35 .35	1.90 1.00	3.59 1.74	1.96 1.09	4.88 .40	5.55 .56	2.33 .02	2.79 0	2.52 0	2.24 0	2.65 0	3.56 1.68	35.32 6.84
1943 P Q	2.05 1.68	1.75 .82	3.75 2.52	2.52 .61	6.77 1.86	2.51 .63	3.85 T	3.67 .12	.38 T	1.65 T	1.44 T	.83 T	31.17 8.24
1944 P Q	.90 .05	1.26 .03	5.21 2.24	3.52 1.68	2.25 .06	3.57 0	2.40 0	4.67 .02	1.98 T	1.64 T	1.07 0	2.67 0	31.14 4.08
1945 P Q	1.10 0	2.31 1.55	8.09 5.29	4.29 1.13	4.74 1.34	3.47 .13	2.63 .01	1.07 0	9.51 1.33	2.68 .80	3.38 .96	1.46 .92	44.73 13.46
1946 P Q	.67 .44	3.85 2.01	2.17 .99	1.44 .06	5.37 .49	5.87 1.56	4.83 .29	2.33 .01	.66 0	4.01 .02	2.47 .10	2.24 .49	35.91 6.46
1947 P Q	5.02 2.61	.38 .32	.80 .31	3.65 1.08	5.96 2.18	5.39 1.65	2.49 .07	3.72 .13	2.81 T	.84 0	2.50 .01	1.10 .02	34.66 8.38
1948 P Q	1.73 .30	2.67 1.80	4.33 1.71	4.95 2.69	3.39 .51	4.34 .04	3.37 .02	.86 0	3.39 0	2.69 0	2.75 .05	2.07 .21	36.54 7.33
1949 P Q	4.86 2.35	2.56 1.40	3.57 1.39	2.43 .56	2.96 .10	2.84 T	7.39 .36	2.41 .01	3.33 .01	.86 0	1.21 0	2.49 .07	36.91 6.25
1950 P Q	8.39 4.05	3.44 1.44	2.21 1.02	3.98 1.35	4.04 .76	1.99 .05	6.92 .28	2.35 .01	5.47 1.71	1.44 T	5.91 .59	2.42 2.44	48.56 13.70
1951 P Q	4.23 2.64	3.09 2.19	4.58 2.12	2.99 1.22	2.24 .08	5.48 .10	2.79 .02	.54 0	2.89 T	1.79 0	4.64 .16	3.98 1.32	39.24 9.85
1952 P Q	5.83 4.19	2.48 1.74	3.17 1.51	3.96 1.65	4.18 .42	2.72 .05	3.86 .08	1.93 0	2.57 T	.78 0	1.66 0	2.44 0	35.28 9.64
1953 P Q	4.49 1.06	1.15 .49	2.81 .75	2.20 .53	4.06 .61	2.18 .01	5.36 .01	1.53 T	1.04 0	.61 0	.90 0	2.07 0	28.40 3.46
1954 P Q	2.34 .06	1.71 .02	3.21 .91	2.91 .56	2.10 .28	1.86 T	3.27 0	3.19 0	1.20 0	5.75 .04	1.30 0	2.45 .26	31.29 2.13
1955 P Q  P Q  P Q	1.15 .34   	3.00 1.50   	4.49 2.24   	3.55 .46   	1.60 .02   	2.61 T   	3.91 .02   	2.99 T   	2.36 T   	2.05 0   	3.07 .04   	.22 0   	31.00 4.62   
Av. P Av. Q	2.92 1.32	2.14 1.13	3.49 1.71	3.07 1.10	4.13 .66	4.07 .56	4.08 .23	2.90 .12	2.71 .20	2.22 .07	2.49 .19	2.13 .59	36.35 7.88
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

**Notes:** \*Partially estimated. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio.  
Quality of records: P - good; Q - excellent.



LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Walhonding River, Muskingum River Basin.

AREA: 74.2 ac.

SHAPE: Roughly elliptical, width - 1,500 ft.; length - 3,200 ft.

SLOPES: 25% is in 6-12% class; 53% in 12-18%; 11% in 18-25%; 11% in 25-35%. Aspect S

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam, loam, and stony loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Keene (shallow phase) silt loam - 20%; Muskingum silt loam - 17%; Keene silt loam - 11%; Muskingum loam - 5%; Muskingum stony loam - 15%; mixed silt loams - 11%; mixed stony loams - 21%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 78%; IV - 11%; VI - 11%.

SURFACE DRAINAGE: Good; length of principal waterway - 3,400 ft.; a natural watershed with surface flow to one main channel with no major division or tributaries; natural boundary.

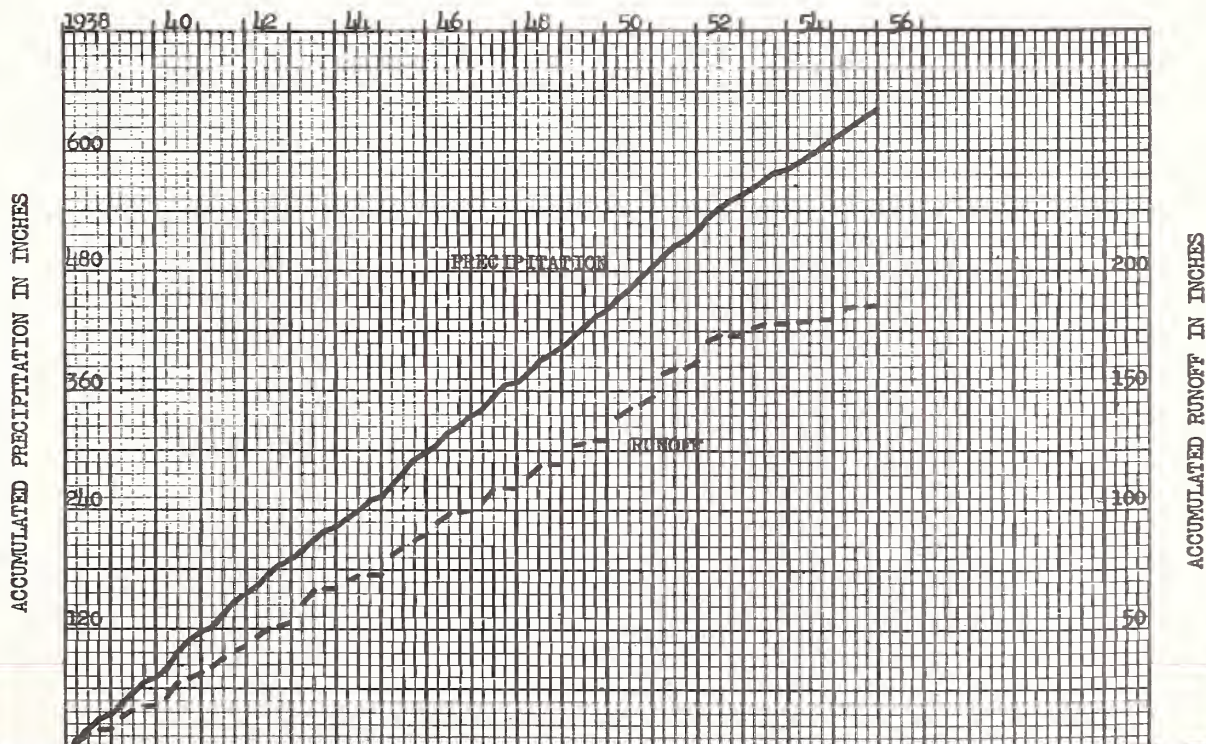
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete dual Parshall flume, 8.0 ft. wide, supplemental Parshall flume, 0.75 ft. wide, 2 PW-1 recorders; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover; in 1938, woods - 13%; grassland - 65%; cultivated - 21%; miscellaneous - 1%; in 1957, woods - 13%; reforested - 1%; grassland - 57%; cultivated - 29%; a 9% area in the northeast corner of this watershed has been in contour strip cropping since 1941; otherwise, prevailing practice throughout.

GENERALLY REPRESENTS: Prevailing practice on mixed cover areas of Muskingum, Keene, and associated silt loams, stony loams, and loams with medium internal drainage, good surface drainage, moderate erosion, found on rolling to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 183

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P			6.45	3.99	5.27	3.67	3.72	3.36	2.65	0.61	3.35	1.31	31.38
Q			3.44	2.12	1.32	.24	.04	.51	T	0	.04	.09	7.80
1939 P	2.73	4.57	3.42	4.15	1.52	6.55	6.71	1.40	1.13	3.92	.69	1.52	38.31
Q	.81	2.72	1.55	2.14	.08	1.02	1.49	.17	0	.19	.14	.18	10.49
1940 P	1.51	3.45	3.44	4.99	4.46	7.03	3.52	6.61	2.01	1.09	4.41	3.30	45.82
Q	.32	.80	2.51	3.01	.67	2.08	.55	.86	.18	.01	.87	1.78	13.64
1941 P	1.83	.39	1.07	.84	6.68	6.21	5.52	5.34	1.40	5.78	1.56	1.96	38.58
Q	1.00	.72	.58	.13	1.71	2.05	1.70	.97	.22	.78	.70	.81	11.37
1942 P	1.55	1.91	3.45	2.31	4.55	6.10	2.16	2.14	2.79	2.02	2.51	3.50	34.99
Q	.67	1.09	1.93	1.39	.98	1.15	.45	.19	.07	.02	.24	2.03	10.21
1943 P	2.18	1.44	4.19	2.86	6.70	1.73	3.48	3.81	.48	1.78	1.43	.92	31.00
Q	2.30	1.54	3.66	1.51	3.06	.99	.26	.37	T	.02	.08	.06	13.85
1944 P	.96	1.62	5.55	3.74	2.15	3.14	2.31	4.99	1.78	1.70	.99	2.43	31.36
Q	.14	.22	3.10	2.39	.44	.07	.01	.13	.02	.04	0	0	6.56
1945 P	.98	2.39	7.77	3.96	4.44	3.35	2.13	1.19	10.60	2.44	3.44	1.70	44.39
Q	0	1.90	5.83	1.50	1.71	.39	.04	.01	2.21	.78	1.41	1.11	16.89
1946 P	.73	3.87	2.08	1.65	5.31	6.79	4.18	2.23	.64	4.09	2.41	2.27	36.25
Q	.69	2.36	1.19	.15	1.06	2.88	.27	.04	0	.08	.22	.66	9.60
1947 P	4.82	.42	.76	3.82	5.36	5.19	2.67	4.11	2.66	.79	2.26	1.05	33.91
Q	3.05	.33	.49	1.28	2.36	1.71	.15	.28	.04	0	.05	.09	9.83
1948 P	2.04	2.81	3.84	4.66	3.24	4.25	2.88	.93	4.36	2.36	2.54	2.13	36.04
Q	.35	1.97	2.63	3.03	1.06	.17	.09	T	.03	.04	.18	.70	10.25
1949 P	4.85	2.49	3.14	2.25	2.76	3.60	6.70	1.76	3.16	.76	1.40	2.52	35.39
Q	3.20	2.07	1.80	1.07	.29	.05	.59	.02	.06	T	.01	.38	9.54
1950 P	7.88	3.31	2.11	3.61	3.78	1.69	5.19	1.53	5.68	1.49	5.62	2.35	44.24
Q	5.53	2.78	1.53	1.99	1.30	.20	.21	.02	1.68	.01	.71	2.29	18.25
1951 P	4.20	2.88	4.52	2.66	2.20	4.94	2.73	.65	2.78	1.41	4.48	4.64	38.09
Q	3.37	3.03	3.07	1.82	.26	.32	.12	0	.01	0	.20	2.55	14.75
1952 P	6.01	2.46	3.33	4.10	3.03	2.71	3.77	1.79	1.93	.69	1.49	2.21	33.52
Q	5.00	2.08	1.75	1.97	.42	.04	.21	.02	0	0	0	.01	11.50
1953 P	4.49	1.14	2.28	1.96	3.87	2.31	4.48	1.78	.73	.49	.85	1.85	26.23
Q	1.01	.54	.73	.67	1.08	.05	.04	.04	0	0	0	0	4.16
1954 P	2.08	1.43	2.99	2.62	2.11	2.26	3.03	2.61	1.14	5.37	1.17	2.13	28.94
Q	.04	.01	.83	.56	.34	T	0	T	0	.04	0	.33	2.15
1955 P	1.04	2.77	4.31	3.30	1.43	2.84	2.90	3.27	2.35	2.10	3.52	.23	30.06
Q	.35	1.77	2.57	.52	.03	T	T	.04	.01	0	.09	0	5.38
P													
Q													
P													
Q													
** Av. P	2.93	2.31	3.43	3.15	3.74	4.16	3.79	2.71	2.68	2.25	2.40	2.16	35.71
** Av. Q	1.64	1.53	2.10	1.48	.99	.77	.36	.19	.27	.12	.29	.76	10.50
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*\*Does not include the part year amounts for 1938. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - good; Q - excellent.

LOCATION: Coshooton Co., Ohio; 10 mi. NE of Coshooton; Walhonding River, Muskingum River Basin.

AREA: 303 ac.

SHAPE: Roughly leaf shape, about 4,900 ft. each axis.

SLOPES: 24% is in 6-12% class; 51% in 12-18%; 13% in 18-25%; 12% in 25-35%. Aspect SE.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam to stony loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Keene (shallow phase) silt loam - 20%; Muskingum silt loam - 13%; Keene silt loam - 10%; mixed silt loams - 27%; Muskingum stony loam - 30%.

EROSION: 2 - 60%; 3 - 40%.

LAND CAPABILITY: III - 75%; IV - 13%; VI - 12%.

SURFACE DRAINAGE: Good; length of principal waterway - 5,200 ft.; a natural watershed with surface flow to one main channel with 2 major tributaries; natural boundary.

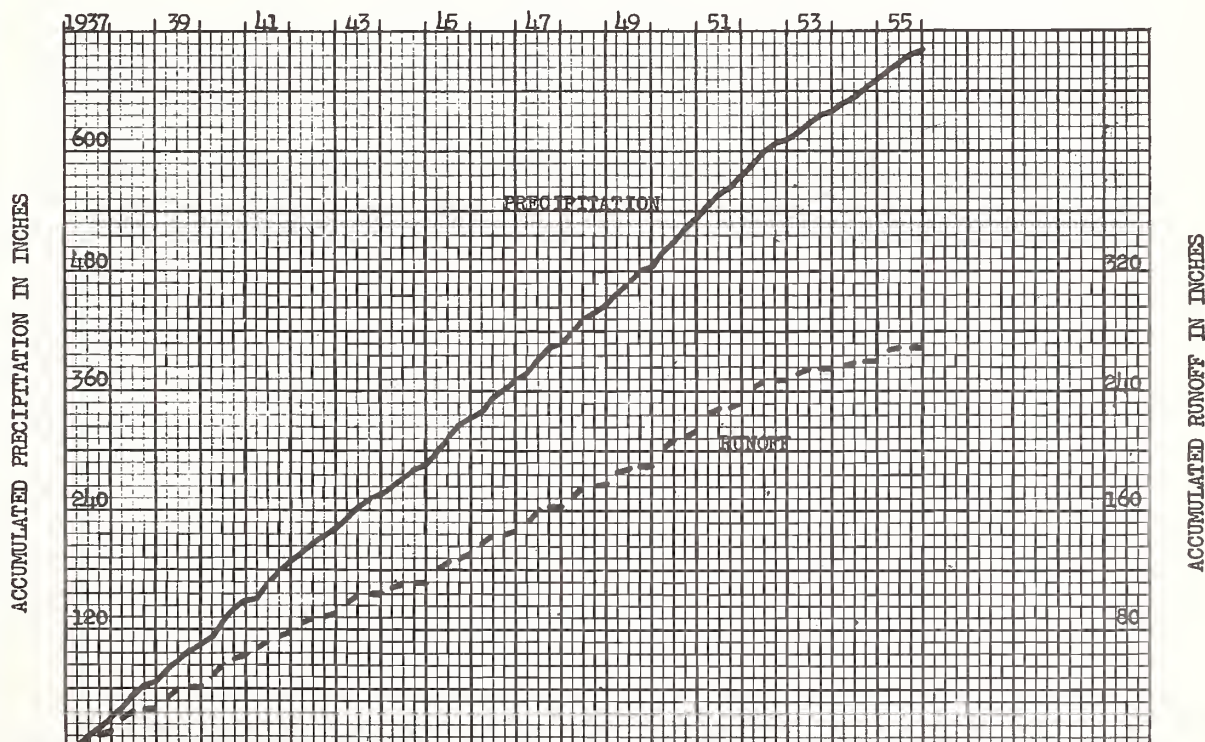
CHARACTER OF FLOW: Perennial, continuous.

INSTRUMENTATION: Runoff - Columbus deep notch concrete weir, current meter station, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover; in 1938, woods - 25%; grassland - 42%; cultivated - 23%; idle - 3%; miscellaneous - 7%; in 1957, woods - 26%; reforested 1%; grassland - 50%; cultivated - 19%; miscellaneous - 4%; prevailing practice throughout except for 1% of area in conservation practice. Watersheds 118, 110, 106, 192, and 128 are included within the boundary of this watershed.

GENERALLY REPRESENTS: Generally prevailing practice on mixed cover areas of Keene, Muskingum, and associated silt loams and stony loams with medium internal drainage, good surface drainage, moderate to severe erosion, found on rolling to steep topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)      Coshocton, Ohio    Watershed 196**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P					4.11	8.27	5.51	2.45	0.87	3.92	1.28	3.44	29.85
Q					2.06	<u>4.23</u>	<u>2.55</u>	.47	.11	.23	.21	1.70	<u>11.56</u>
1938 P	1.59	2.41	6.27	3.68	5.06	3.95	3.59	3.41	2.77	.61	2.93	1.09	37.36
Q	.93	2.34	5.13	3.14	1.69	.72	<u>.27</u>	<u>.73</u>	.17	.08	.25	.22	<u>15.67</u>
1939 P	2.04	4.06	3.51	3.74	1.39	6.87	7.17	1.21	1.05	4.46	.56	1.38	37.44
Q	1.04	3.70	2.58	3.16	.35	1.32	<u>1.57</u>	.18	.07	.45	.11	.21	<u>14.74</u>
1940 P	1.25	2.79	3.51	4.28	4.52	7.31	3.48	6.61	1.92	1.04	4.18	3.15	44.04
Q	.59	2.05	3.75	4.38	1.41	<u>2.63</u>	1.00	<u>1.40</u>	.36	.15	<u>1.29</u>	2.34	<u>21.37</u>
1941 P	1.53	.31	.90	.92	6.72	7.83	5.51	5.87	1.60	6.08	1.56	1.87	40.70
Q	1.46	1.14	1.15	.43	<u>2.15</u>	<u>2.67</u>	<u>1.88</u>	<u>1.07</u>	.23	1.02	1.00	<u>1.06</u>	<u>15.26</u>
1942 P	1.32	1.98	3.49	2.06	3.49	5.67	2.21	2.45	2.90	2.03	2.75	3.49	33.84
Q	.86	1.69	<u>2.86</u>	2.10	1.17	1.06	.23	.12	.12	.13	.34	2.07	<u>12.75</u>
1943 P	2.20	1.70	4.12	2.97	6.82	2.38	3.57	4.03	.44	1.69	1.51	.92	32.35
Q	2.18	1.38	3.52	1.31	<u>2.80</u>	1.04	.21	.22	.04	.07	.10	.11	<u>12.98</u>
1944 P	.98	1.40	5.21	3.86	2.14	3.13	2.40	5.09	1.88	1.60	1.00	2.44	31.13
Q	.20	.27	2.99	2.54	.60	.30	.07	.16	.06	.11	.07	.19	7.56
1945 P	1.02	2.43	8.47	4.19	4.76	3.92	2.41	1.29	10.70	2.50	3.47	1.40	46.56
Q	.39	2.28	6.44	2.46	2.39	.53	.13	.06	<u>2.20</u>	1.00	1.64	1.40	<u>20.92</u>
1946 P	.73	4.29	2.10	1.61	5.55	6.97	4.95	2.33	.64	4.23	2.44	2.39	38.23
Q	.85	2.66	1.82	.47	1.71	<u>3.45</u>	.46	.17	.09	.26	.56	<u>1.34</u>	<u>13.84</u>
1947 P	5.34	.36	.83	4.02	6.21	5.43	2.83	4.22	3.10	.96	2.44	1.18	36.92
Q	4.27	.92	.74	2.42	3.91	<u>2.60</u>	.35	<u>.49</u>	.17	.10	.33	.26	<u>16.56</u>
1948 P	2.00	2.84	4.45	5.05	3.62	4.84	3.26	.88	4.00	2.77	2.85	2.23	38.79
Q	.95	2.49	2.79	4.57	1.54	.34	.25	.06	.10	.16	.36	.72	14.33
1949 P	4.94	2.75	3.49	2.34	2.93	3.68	7.59	2.18	3.64	.93	1.41	2.63	38.51
Q	3.70	2.80	2.28	1.43	.60	.20	<u>1.01</u>	.13	.16	.09	.10	.45	<u>12.95</u>
1950 P	8.57	3.35	2.39	4.50	4.04	1.96	6.31	1.53	5.89	1.52	5.96	2.57	48.59
Q	6.22	3.17	1.84	2.74	<u>1.98</u>	.32	.49	.12	<u>1.77</u>	.11	1.03	3.20	<u>22.99</u>
1951 P	4.44	3.10	5.01	3.25	2.28	5.80	2.89	.58	3.13	1.69	4.68	4.49	41.34
Q	3.95	3.98	3.77	2.36	.51	.43	.22	.05	.10	.07	.50	2.76	18.70
1952 P	6.37	2.36	3.24	4.20	3.73	2.94	4.06	2.07	2.33	.74	1.71	2.35	36.10
Q	<u>5.90</u>	2.08	2.37	2.84	.96	.25	.33	.07	.06	.05	.06	.13	<u>15.10</u>
1953 P	4.60	1.23	2.66	2.27	4.19	2.18	5.07	1.87	.84	.61	.98	2.11	28.61
Q	1.66	.93	1.50	1.33	1.71	.18	.19	.10	.03	.04	.05	.08	7.80
1954 P	2.38	1.75	3.49	2.74	2.09	2.24	3.34	3.07	1.42	5.73	1.26	2.33	31.84
Q	.19	.12	1.70	1.26	.84	.11	.06	.06	.03	.29	.12	.65	5.43
1955 P	1.24	3.03	4.56	3.43	1.40	2.56	3.13	3.51	2.38	2.27	3.32	.23	31.06
Q	.72	2.34	3.51	1.46	.29	.08	.10	.07	.05	.10	.28	.10	9.10
P Q													
**Av. P	2.92	2.34	3.76	3.28	3.94	4.43	4.10	2.90	2.81	2.30	2.50	2.13	37.41
**Av. Q	2.00	2.02	<u>2.82</u>	2.24	1.48	<u>1.01</u>	.49	.29	.32	.24	.46	.96	<u>14.33</u>
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*\*Part year amounts for 1937 not included. Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records: P - good; Q - good.



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## COSHOOTON, OHIO Watershed 10

LOCATION: Coshoooton Co., Ohio; 10 mi. NE of Coshoooton; Little Mill Creek, Walhonding River, Muskingum River Basin.

AREA: 122 ac.

SHAPE: Roughly elliptical, width - 1,700 ft., length - 3,400 ft.

SLOPES: 5% is in 2-6% class; 8% in 6-12%; 62% in 12-18%; 18% in 18-25%; 7% in 25-35%. Aspect SE.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Keene silt loam - 42%; Muskingum silt loam - 10%; Keene silt loam (shallow phase) - 9%; mixed silt loams and stone loams - 39%.

EROSION: 1 - 84%; 2 - 16%.

LAND CAPABILITY: II - 5%; III - 70%; IV - 18%; VI - 7%.

SURFACE DRAINAGE: Good; length of principal waterway - 3,500 ft.; surface flow through a system of well defined waterways feeding one main channel; area is highly dissected and has occasional small gullies; valleys are narrow and have high gradients; natural boundary.

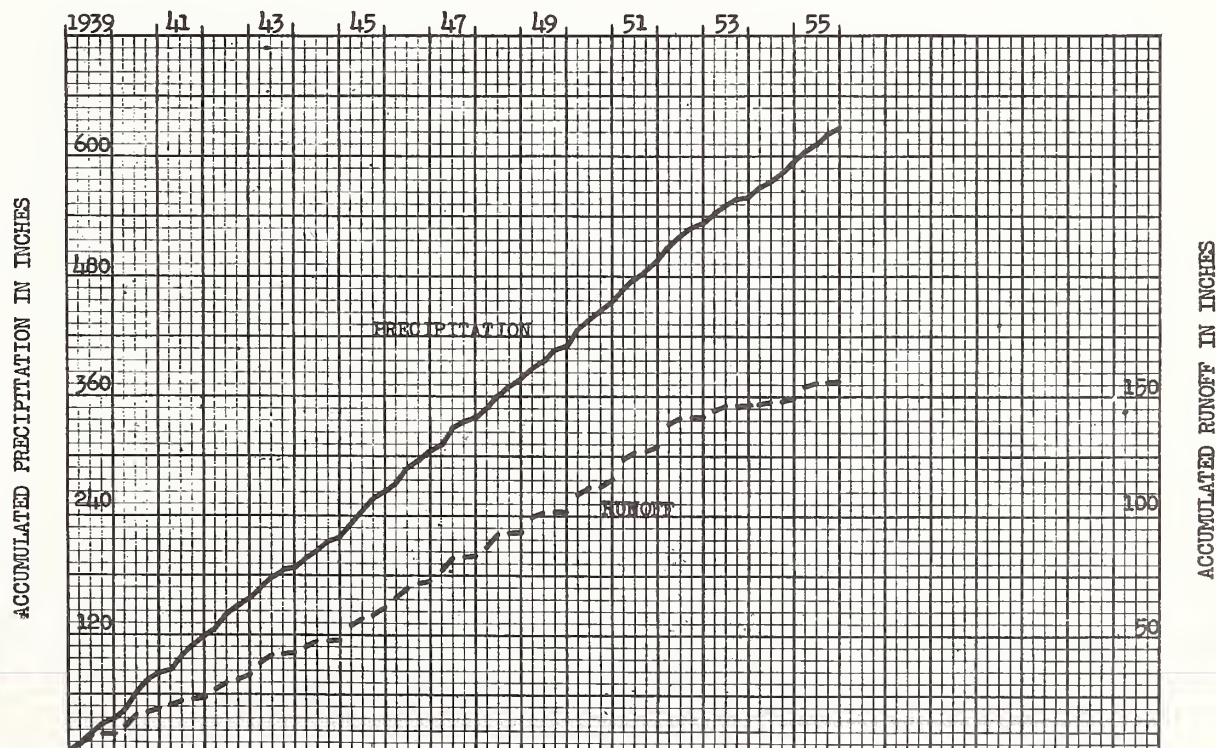
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete dual Parshall flume 15 ft. wide, supplemental Parshall flume 1 ft. wide, 2 FW-1 recorders; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover under conservation practice; cropland - 21%; grassland - 48%; woodland - 25%; miscellaneous - 6%.

GENERALLY REPRESENTS: Conservation practice on mixed cover areas of Keene, Muskingum, and associated silt loams with medium internal drainage, good surface drainage, slight to moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 10

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P	2.42	4.35	3.78	3.83	1.43	5.81	5.27	2.01	0.88	4.32	0.59	1.38	36.07
Q	.83	2.48	1.89	2.14	.20	.39	.43	.12	T	.13	.01	.11	8.73
1940 P	1.44	3.56	3.61	4.83	4.24	7.87	3.14	6.82	1.94	1.15	4.49	3.14	46.23
Q	.22	.88	2.22	2.46	.36	1.87	.45	.54	.08	.02	.48	1.09	10.67
1941 P	1.82	.43	.92	1.16	6.29	5.54	5.79	4.20	1.30	6.11	1.67	1.64	36.87
Q	.60	.55	.51	.06	.52	1.14	.41	.22	.08	.22	.21	.23	4.75
1942 P	1.50	2.11	3.29	2.25	5.02	7.40	1.92	2.78	2.42	2.69	2.82	4.23	38.43
Q	.28	.98	1.48	1.25	.75	1.72	.27	.14	.10	.11	.21	2.10	9.39
1943 P	2.25	1.72	4.39	2.86	5.90	2.33	3.87	2.86	.57	1.79	1.40	.94	30.88
Q	1.49	.86	2.42	.97	1.75	.67	.20	.20	.06	.08	.17	.06	8.93
1944 P	.93	1.60	5.69	3.76	2.77	3.17	1.77	4.38	1.70	1.58	.97	2.82	31.14
Q	.27	.25	1.89	1.83	.63	.22	.02	.04	.03	.05	.04	.03	5.30
1945 P	1.19	2.77	7.68	4.27	4.75	3.96	3.09	1.07	9.84	2.75	3.64	1.85	46.86
Q	.04	1.41	4.72	1.36	1.46	.29	.11	.04	1.49	1.10	1.26	.94	14.22
1946 P	.69	3.86	2.25	1.13	5.65	7.15	6.36	2.43	.66	4.01	2.52	2.27	38.98
Q	.52	2.37	1.40	.29	1.18	1.94	2.20	.22	.06	.15	.31	.59	11.23
1947 P	4.74	.46	.99	3.97	5.70	5.88	2.95	2.78	2.99	.85	2.49	1.10	34.90
Q	2.54	.52	.54	1.38	2.19	1.85	.41	.11	.10	.07	.09	.09	9.89
1948 P	2.07	2.45	3.90	5.32	3.61	4.62	3.05	.97	3.76	2.63	2.81	2.37	37.56
Q	.32	1.79	1.94	3.71	1.60	.27	.15	.03	.05	.10	.11	.50	10.57
1949 P	4.86	2.37	2.95	2.63	2.70	2.21	7.34	2.37	2.74	.75	1.12	2.26	34.30
Q	2.36	1.93	1.67	1.21	.41	.11	.28	.05	.07	.05	.05	.11	8.30
1950 P	8.22	3.48	2.40	3.44	3.50	2.03	4.49	2.67	3.54	1.30	5.78	2.65	43.56
Q	3.79	2.33	1.19	1.40	1.07	.26	.13	.08	.14	.11	.53	2.56	13.59
1951 P	4.00	3.08	4.92	3.34	2.16	5.34	3.10	.69	2.67	1.97	4.79	4.83	40.89
Q	2.85	3.00	2.71	1.72	.50	.31	.20	.03	.02	.05	.24	2.43	14.06
1952 P	6.07	2.68	3.69	4.20	4.05	2.44	5.13	1.90	2.51	.89	1.73	2.31	37.60
Q	4.16	2.27	1.86	2.08	.82	.19	.24	.06	.03	.03	.05	.08	11.87
1953 P	4.96	1.19	2.59	2.19	3.71	2.29	4.47	.99	1.37	.43	1.06	2.24	27.49
Q	1.19	.69	.92	.76	.99	.14	.11	.02	T	T	.02	.05	4.89
1954 P	2.36	1.78	3.25	2.61	2.12	1.55	3.96	3.58	2.02	6.73	1.52	2.54	34.02
Q	.10	.06	.77	.60	.30	.03	.02	.04	.02	.51	.29	.76	3.50
1955 P	1.21	2.85	4.45	3.78	1.65	2.75	3.92	3.83	2.54	2.10	3.39	.23	32.70
Q	.57	1.65	2.41	1.02	.20	.04	.05	.03	.01	.10	.17	.06	6.31
P													
Q													
P													
Q													
P													
Q													
Av. P	2.98	2.40	3.57	3.27	3.84	4.26	4.10	2.73	2.56	2.48	2.52	2.28	36.99
Av. Q	1.30	1.41	1.80	1.43	.88	.67	.33	.12	.14	.17	.25	.69	9.19
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

**Notes:** Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records:  
P - good; Q - good.



LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Little Mill Creek, Walhonding River, Muskingum River Basin.

AREA: 349 ac.

SHAPE: Roughly pentagonal, width - 2100 ft., length - 3800 ft.

SLOPES: 3% is in 2-6% class; 23% in 6-12%; 53% in 12-18%; 11% in 18-25%; 10% in 25-35%. Aspect S.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam to loam texture; moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Keene silt loam - 19%; Muskingum silt loam - 12%; Keene (shallow phase) silt loam - 11%; mixed loams, silt loams, and stony loams - 58%.

EROSION: 1 - 66%; 2 - 34%.

LAND CAPABILITY: II - 3%; III - 76%; IV - 11%; VI - 10%.

SURFACE DRAINAGE: Good; length of principal waterway - 1.5 mi.; surface flow through a system of well defined waterways feeding one main channel; area is highly dissected and has occasional small gullies; valleys are narrow and have high gradients; natural boundary.

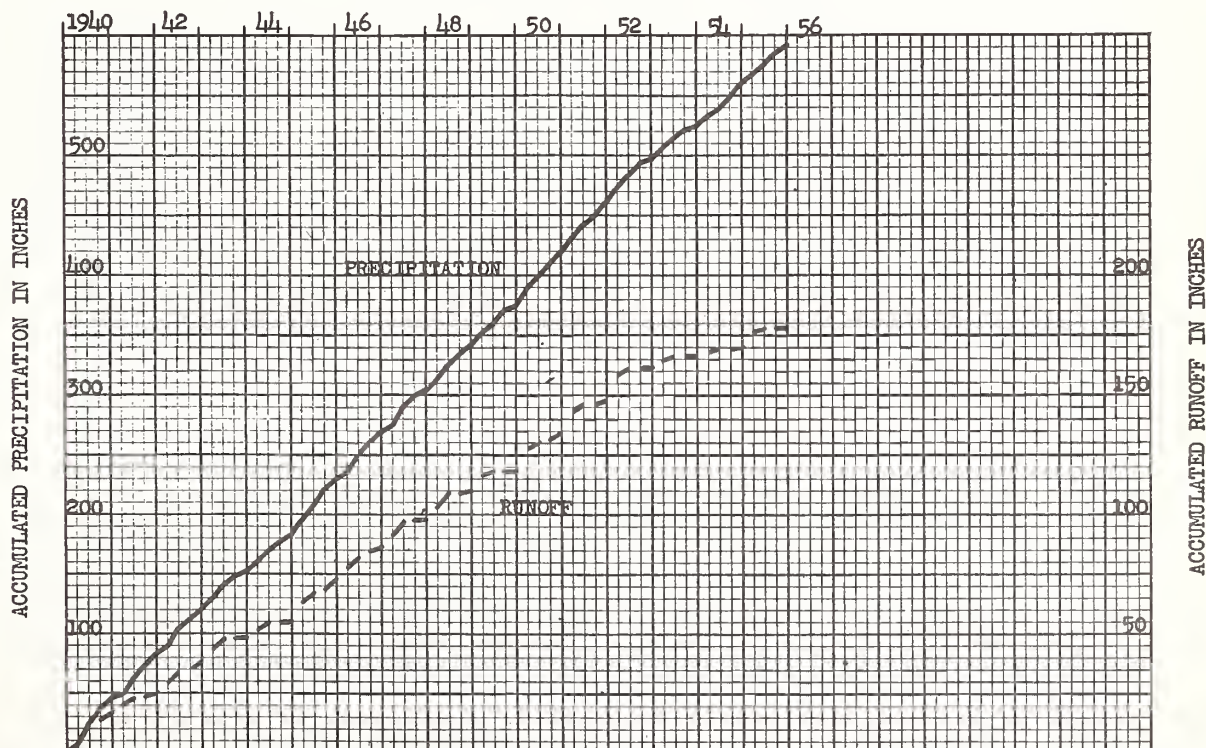
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - Columbus deep notch concrete weir, current meter station, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover under conservation practice; cropland - 20%; grassland - 54%; woodland - 23%; miscellaneous - 3%.

GENERALLY REPRESENTS: Conservation practice on mixed cover areas of Keene, Muskingum and associated silt loams, and loams with medium internal drainage, good surface drainage, slight to moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF





## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Coshocton, Ohio Watershed 5

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1940 P	1.44	3.56	3.61	4.83	4.24	7.87	3.14	6.82	1.94	1.15	4.49	3.14	46.23
Q	.24	1.17	3.16	3.52	.85	2.68	1.30	.69	.33	.09	.93	1.84	16.80
1941 P	1.82	.43	.92	1.16	6.29	5.54	5.79	4.20	1.30	6.11	1.67	1.64	36.87
Q	1.44	.93	.99	.42	.62	2.08	.61	.08	.03	.35	.36	.42	8.33
1942 P	1.50	2.11	3.29	2.25	5.02	7.40	1.92	2.78	2.42	2.69	2.82	4.23	38.43
Q	.65	1.56	2.14	1.77	.88	1.85	.25	.22	.09	.17	.55	2.24	12.37
1943 P	2.25	1.72	4.39	2.86	5.90	2.33	3.87	2.86	.57	1.79	1.40	.94	30.88
Q	2.02	1.24	2.89	1.30	1.86	.69	.28	.19	.01	.03	.06	.04	10.61
1944 P	.93	1.60	5.69	3.76	2.77	3.17	1.77	4.38	1.70	1.58	.97	2.82	31.14
Q	.17	.28	2.66	2.24	.76	.16	.02	.23	.08	.06	.04	.14	6.84
1945 P	1.19	2.77	7.68	4.27	4.75	3.96	3.09	1.07	9.84	2.75	3.64	1.85	46.86
Q	.27	2.26	5.65	1.78	1.81	.56	.15	.02	1.19	1.67	1.44	1.33	18.13
1946 P	.69	3.86	2.25	1.13	5.65	7.15	6.36	2.43	.66	4.01	2.52	2.27	38.98
Q	.72	2.15	1.83	.35	1.51	2.53	2.07	.30	.03	.39	.57	.85	13.30
1947 P	4.74	.46	.99	3.97	5.70	5.88	2.95	2.78	2.99	.85	2.49	1.10	34.90
Q	3.08	.89	.73	1.83	2.54	1.67	.55	.12	.12	.05	.15	.12	11.85
1948 P	2.07	2.45	3.90	5.32	3.61	4.62	3.05	.97	3.76	2.63	2.81	2.37	37.56
Q	.39	1.96	2.43	4.00	1.89	.26	.06	.01	.06	.12	.21	.68	12.07
1949 P	4.86	2.37	2.95	2.63	2.70	2.21	7.34	2.37	2.74	.75	1.12	2.26	34.30
Q	2.71	1.87	1.64	1.19	.41	.05	.09	.01	.01	.01	.01	.09	8.09
1950 P	8.22	3.48	2.40	3.44	3.50	2.03	4.49	2.67	3.54	1.36	5.78	2.65	43.56
Q	4.22	2.99	1.65	1.69	1.47	.28	.15	.08	.30	.07	.72	2.33	15.95
1951 P	4.00	3.08	4.92	3.34	2.16	5.34	3.10	.69	2.67	1.97	4.79	4.83	40.89
Q	3.17	3.22	2.93	2.05	.41	.22	.13	.01	.01	.02	.34	1.80	14.31
1952 P	6.07	2.68	3.69	4.20	4.05	2.44	5.13	1.90	2.51	.89	1.73	2.31	37.60
Q	4.76	2.30	2.22	2.23	.90	.15	.31	.02	.02	.01	.02	.11	13.05
1953 P	4.96	1.19	2.59	2.19	3.71	2.29	4.47	.99	1.37	.43	1.06	2.24	27.49
Q	1.34	.71	.97	.87	.87	.05	.07	.01	T	T	T	.01	4.90
1954 P	2.36	1.78	3.25	2.61	2.12	1.55	3.96	3.58	2.02	6.73	1.52	2.54	34.02
Q	.18	.08	1.10	.87	.60	.05	.06	.03	.01	.31	.07	.66	4.02
1955 P	1.21	2.85	4.45	3.78	1.65	2.75	3.92	3.83	2.54	2.10	3.39	.23	32.70
Q	.72	1.99	2.99	1.22	.21	.04	.06	.05	.01	.01	.18	.03	7.52
P													
Q													
P													
Q													
P													
Q													
Av. P	3.02	2.27	3.56	3.23	3.99	4.16	4.02	2.77	2.66	2.36	2.64	2.34	37.02
Av. Q	1.63	1.60	2.25	1.71	1.10	.83	.38	.13	.14	.21	.35	.79	11.12
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records:

P - fair; Q - fair.

LOCATION: Coshockton Co., Ohio; 10 mi. NE of Coshockton; Little Mill Creek, Walhonding River, Muskingum River Basin.

AREA: 920 ac. (1.44 sq. mi.)

SHAPE: Roughly leaf shape, width - 1.4 mi., length - 1.6 mi.

SLOPES: 5% is in 2-6% class; 20% in 6-12%; 55% in 12-18%; 10% in 18-25%; 10% in 25-35%. Aspect S.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam, loam and stony loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Keene silt loam - 18%; Keene (shallow phase) silt loam - 18%; Muskingum silt loam - 9%; mixed silt loams - 12%; mixed stony loams - 29%; mixed loams - 14%.

EROSION: 1 - 66%; 2 - 34%.

LAND CAPABILITY: II - 5%; III - 75%; IV - 10%; VI - 10%.

SURFACE DRAINAGE: Good; length of principal waterway - 1.8 mi.; surface flow through a system of well defined waterways feeding 2 main channels of approximately equal drainage area which connect about 0.25 mi. above the gaging station; area is highly dissected and has occasional small gullies;

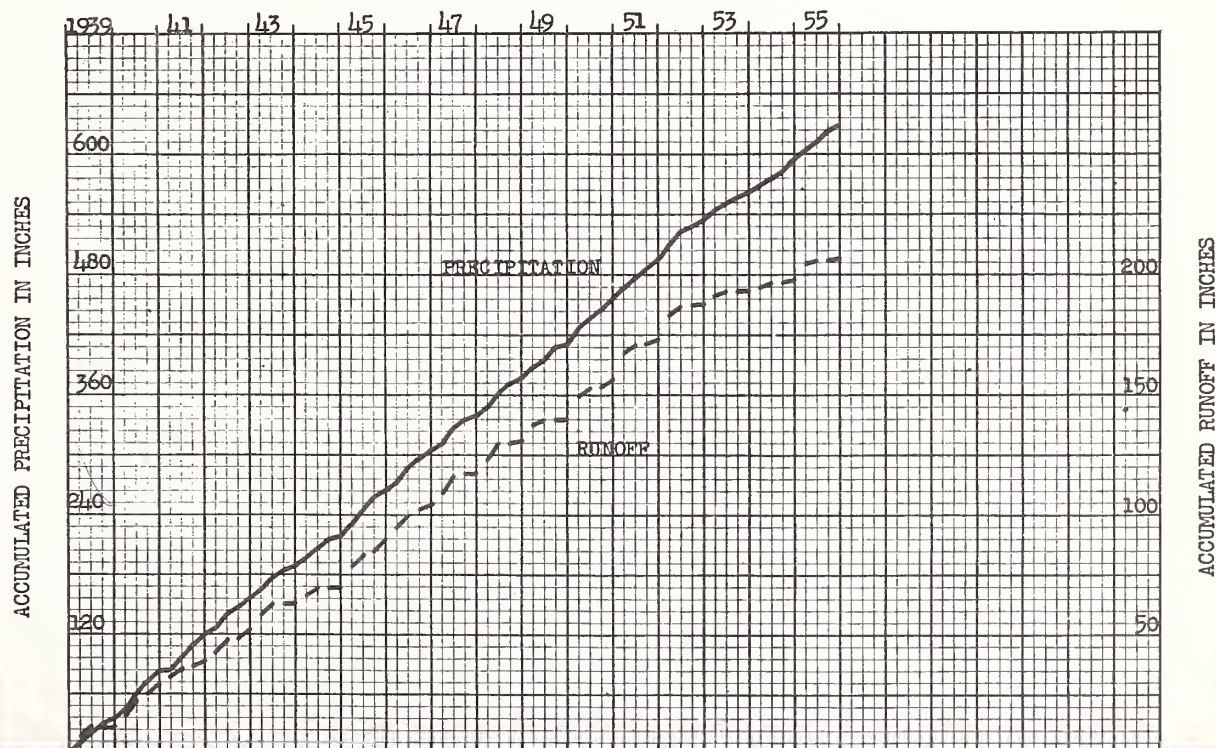
CHARACTER OF FLOW: Ephemeral, continuous. valleys are generally narrow and have high gradients; natural boundary.

INSTRUMENTATION: Runoff - Columbus deep notch concrete weir, current meter station, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover under conservation practice; cropland - 16%; grassland - 59%; woodland - 21%; miscellaneous - 4%; Watershed 5 lies within the north and west boundary.

GENERALLY REPRESENTS: Conservation practice on mixed cover areas of Keene, Muskingum, and associated silt loams, loams, and stony loams with medium internal drainage, good surface drainage, slight to moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Coshocton, Ohio Watershed 92

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P	2.42	4.35	3.78	3.83	1.43	5.81	5.27	2.01	0.88	4.32	0.59	1.38	36.07
Q	1.02	3.39	2.46	2.92	.36	.57	.29	.05	T	.10	.04	.08	11.28
1940 P	1.44	3.56	3.61	4.83	4.24	7.87	3.14	6.82	1.94	1.15	4.49	3.14	46.23
Q	.32	1.21	3.06	3.59	.74	2.93	1.12	.65	.33	.09	1.27	2.34	17.65
1941 P	1.82	.43	.92	1.16	6.29	5.54	5.79	4.20	1.30	6.11	1.67	1.64	36.87
Q	1.69	1.06	.97	.43	.82	2.31	.64	.13	.06	.57	.72	.70	10.10
1942 P	1.50	2.11	3.29	2.25	5.02	7.40	1.92	2.78	2.42	2.69	2.82	4.23	38.43
Q	.75	1.56	1.84	1.79	.99	1.82	.27	.18	.08	.15	.62	2.71	12.76
1943 P	2.25	1.72	4.39	2.86	5.90	2.33	3.87	2.86	.57	1.79	1.40	.94	30.88
Q	2.08	1.22	3.15	1.29	1.90	.89	.24	.15	.02	.04	.12	.10	11.20
1944 P	.93	1.60	5.69	3.76	2.77	3.17	1.77	4.38	1.70	1.58	.97	2.82	31.14
Q	.10	.29	2.76	2.23	.78	.18	.01	.18	.08	.05	.04	.14	6.84
1945 P	1.19	2.77	7.68	4.27	4.75	3.96	3.09	1.07	9.84	2.75	3.64	1.85	46.86
Q	.26	2.30	6.25	1.92	2.02	.58	.17	.02	1.36	1.71	1.61	1.44	19.64
1946 P	.69	3.86	2.25	1.13	5.65	7.15	6.36	2.43	.66	4.01	2.52	2.27	38.98
Q	.82	2.59	1.78	.35	1.68	2.87	2.26	.30	.03	.44	.58	.93	14.63
1947 P	4.74	.46	.99	3.97	5.70	5.88	2.95	2.78	2.99	.85	2.49	1.10	34.90
Q	3.38	1.05	.73	2.03	3.00	2.04	.55	.14	.14	.04	.19	.14	13.43
1948 P	2.07	2.45	3.90	5.32	3.61	4.62	3.05	.97	3.76	2.63	2.81	2.37	37.56
Q	.58	2.13	2.65	4.64	1.94	.28	.09	.02	.07	.14	.31	.95	15.80
1949 P	4.86	2.37	2.95	2.63	2.70	2.21	7.34	2.37	2.74	.75	1.12	2.26	34.30
Q	3.03	2.04	1.80	1.34	.50	.08	.11	.01	.02	.01	.03	.12	9.09
1950 P	8.22	3.48	2.40	3.44	3.50	2.03	4.49	2.67	3.54	1.36	5.78	2.65	43.56
Q	4.50	2.87	1.63	1.89	1.46	.33	.16	.06	.21	.08	.80	2.68	16.67
1951 P	4.00	3.08	4.92	3.34	2.16	5.34	3.10	.69	2.67	1.97	4.79	4.83	40.89
Q	3.49	3.77	3.29	2.21	.57	.33	.23	.01	.03	.03	.40	2.13	16.49
1952 P	6.07	2.68	3.69	4.20	4.05	2.44	5.13	1.90	2.51	.89	1.73	2.31	37.60
Q	5.20	2.46	2.34	2.36	1.02	.20	.39	.03	.03	.01	.04	.16	14.24
1953 P	4.96	1.19	2.59	2.19	3.71	2.29	4.47	.99	1.37	.43	1.06	2.24	27.49
Q	1.61	.88	1.11	1.01	.88	.08	.08	.02	0	0	T	.04	5.71
1954 P	2.36	1.78	3.25	2.61	2.12	1.55	3.96	3.58	2.02	6.73	1.52	2.54	34.02
Q	.18	.10	1.36	1.08	.74	.08	.05	.03	T	.41	.11	.75	4.89
1955 P	1.21	2.85	4.45	3.78	1.65	2.75	3.92	3.83	2.54	2.10	3.39	.23	32.70
Q	.81	2.22	2.98	1.27	.26	.05	.07	.06	.01	.03	.30	.09	8.15
P													
Q													
P													
Q													
P													
Q													
Av. P	2.98	2.40	3.57	3.27	3.84	4.26	4.10	2.73	2.56	2.48	2.52	2.28	36.99
Av. Q	1.75	1.83	2.36	1.90	1.16	.92	.40	.12	.15	.23	.42	.91	12.15
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

**Notes:** Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records:  
P - fair; Q - fair.



LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Little Mill Creek, Walhonding River, Muskingum River Basin.

AREA: 1,520 ac. (2.37 sq. mi.) SHAPE: Roughly rectangular, width - 1.5 mi.; length - 2.0 mi.

SLOPES: 5% is in 2-6% class; 16% in 6-12%; 55% in 12-18%; 14% in 18-25%; 10% in 25-35%. Aspect S.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam, loam, and stony loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Keene silt loam - 17%; Keene (shallow phase) silt loam - 12%; Muskingum silt loam - 8%; mixed silt loams - 18%; mixed stony loams - 35%; mixed loams - 10%.

EROSION: 1 - 62%; 2 - 38%.

LAND CAPABILITY: II - 5%; III - 70%; IV - 14%; VI - 11%.

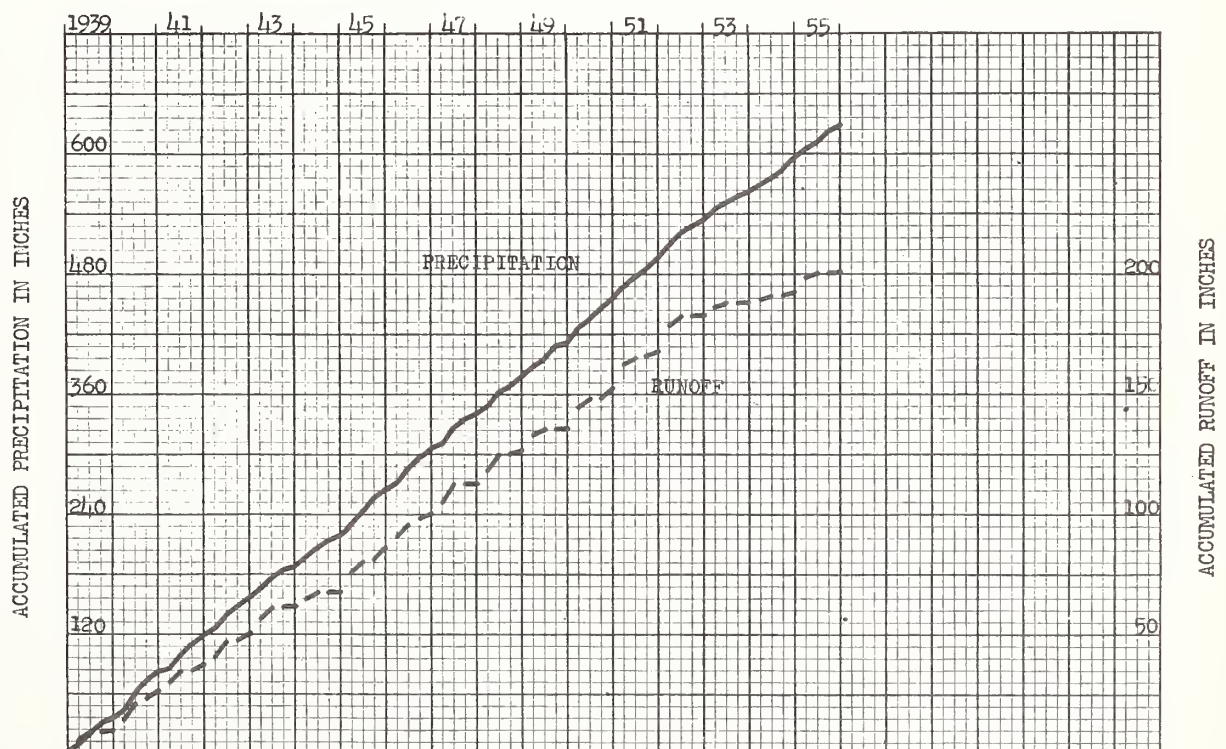
SURFACE DRAINAGE: Good; length of principal waterway - 2.6 mi.; surface flow through a system of well defined waterways feeding the main creek channel; area is highly dissected and has occasional small gullies; valleys are generally narrow and have high gradients except in lower reaches of main channel; natural boundary.

INSTRUMENTATION: Runoff - Columbus deep notch weir, current meter station, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover under conservation practice; cropland - 15%; grassland - 57%; woodland - 21%; miscellaneous - 4%; Watershed 92 lies in the upper half and Watershed 5 in the northwest quadrant of this watershed.

GENERALLY REPRESENTS: Conservation practice on mixed cover areas of Keene, Muskingum, and associated silt loams, loams, and stony loams with medium internal drainage, good surface drainage, slight to moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshooton, Ohio Watershed 94**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P	2.42	4.35	3.78	3.83	1.43	5.81	5.27	2.01	0.88	4.32	0.59	1.38	36.07
Q	.93	2.92	2.05	2.32	.26	.44	.30	.05	T	.11	.03	.06	9.47
1940 P	1.44	3.56	3.61	4.83	4.24	7.87	3.14	6.82	1.94	1.15	4.49	3.14	46.23
Q	.33	1.40	3.11	3.60	.77	2.70	.97	.66	.36	.10	1.05	1.97	17.02
1941 P	1.82	.43	.92	1.16	6.29	5.54	5.79	4.20	1.30	6.11	1.67	1.64	36.87
Q	1.56	1.07	1.15	.49	.94	2.46	.77	.24	.07	.65	.84	.81	11.05
1942 P	1.50	2.11	3.29	2.25	5.02	7.40	1.92	2.78	2.42	2.69	2.82	4.23	38.43
Q	.66	1.57	2.21	1.81	1.03	1.97	.28	.15	.08	.13	.50	2.37	12.76
1943 P	2.25	1.72	4.39	2.86	5.90	2.33	3.87	2.86	.57	1.79	1.40	.94	30.88
Q	2.02	1.21	3.34	1.30	1.95	.82	.26	.17	.01	.02	.06	.06	11.22
1944 P	.93	1.60	5.69	3.76	2.77	3.17	1.77	4.38	1.70	1.58	.97	2.82	31.14
Q	.13	.20	2.52	2.20	.66	.14	.01	.12	.05	.04	.03	.09	6.19
1945 P	1.19	2.77	7.68	4.27	4.75	3.96	3.09	1.07	9.84	2.75	3.64	1.85	46.86
Q	.21	2.05	5.99	1.77	1.84	.51	.17	.02	1.50	1.61	1.49	1.30	18.46
1946 P	.69	3.86	2.25	1.13	5.65	7.15	6.36	2.43	.66	4.01	2.52	2.27	38.98
Q	.78	2.57	1.74	.32	1.54	2.83	2.44	.31	.04	.28	.52	.89	14.26
1947 P	4.74	.46	.99	3.97	5.70	5.88	2.95	2.78	2.99	.85	2.49	1.10	34.90
Q	3.31	.93	.66	1.90	2.90	2.11	.47	.13	.13	.05	.16	.16	12.91
1948 P	2.07	2.45	3.90	5.32	3.61	4.62	3.05	.97	3.76	2.63	2.81	2.37	37.56
Q	.52	2.13	2.49	4.52	1.84	.31	.12	.03	.06	.13	.26	.87	13.28
1949 P	4.86	2.37	2.95	2.63	2.70	2.21	7.34	2.37	2.74	.75	1.12	2.26	34.30
Q	3.10	2.03	1.75	1.39	.52	.09	.18	.02	.03	.01	.02	.12	9.26
1950 P	8.22	3.48	2.40	3.44	3.50	2.03	4.49	2.67	3.54	1.36	5.78	2.65	43.56
Q	4.48	2.81	1.62	1.88	1.46	.35	.16	.06	.23	.07	.79	2.59	16.50
1951 P	4.00	3.08	4.92	3.34	2.16	5.34	3.10	.69	2.67	1.97	4.79	4.83	40.89
Q	3.38	3.66	3.32	2.22	.58	.35	.24	.01	.03	.05	.38	2.07	16.29
1952 P	6.07	2.68	3.69	4.20	4.05	2.44	5.13	1.90	2.51	.89	1.73	2.31	37.60
Q	5.37	2.37	2.30	2.35	1.06	.21	.40	.04	.03	.01	.03	.13	14.30
1953 P	4.96	1.19	2.59	2.19	3.71	2.29	4.47	.99	1.37	.43	1.06	2.24	27.49
Q	1.46	.79	1.05	.93	.95	.09	.09	.02	0	0	.01	.04	5.43
1954 P	2.36	1.78	3.25	2.61	2.12	1.55	3.96	3.58	2.02	6.73	1.52	2.54	34.02
Q	.15	.08	1.16	.98	.66	.06	.03	.03	T	.49	.12	.74	4.50
1955 P	1.21	2.85	4.45	3.78	1.65	2.75	3.92	3.83	2.54	2.10	3.39	.23	32.70
Q	.77	2.16	3.04	1.23	.31	.06	.09	.07	.01	.02	.28	.08	8.12
P													
Q													
P													
Q													
P													
Q													
Av. P	2.98	2.40	3.57	3.27	3.84	4.26	4.10	2.73	2.56	2.48	2.52	2.28	36.99
Av. Q	1.72	1.76	2.32	1.84	1.13	.91	.41	.13	.15	.22	.39	.84	11.82
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

**Notes:** Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio. Quality of records:  
P - fair; Q - fair.



1-56

## COSHOCTON, OHIO Watershed 95

LOCATION: Coshocton Co., Ohio; 10 mi. NE of Coshocton; Little Mill Creek, Walhonding River, Muskingum River Basin.

AREA: 2570 ac. (4.02 sq. mi.)

SHAPE: Roughly ovoid, width - 1.7 mi., length - 3.3 mi.

SLOPES: 6% is in 2-6% class; 12% in 6-12%; 50% in 12-18%; 18% in 18-25%; 14% in 25-35%. Aspect SE.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam, loam, and stony loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Keene silt loam - 21%; Keene (shallow phase) silt loam - 13%; Muskingum silt loam - 11%; mixed silt loams - 19%; mixed stony loams - 28%; mixed loams - 8%.

EROSION: 1 - 60%; 2 - 40%.

LAND CAPABILITY: II - 6%; III - 62%; IV - 18%; VI - 14%.

SURFACE DRAINAGE: Good; length of principal waterway - 3.5 mi.; surface flow through 9 major and numerous minor tributaries to the main creek channel; area is highly dissected and has occasional small gullies; valleys are generally narrow and have high gradients except in lower reaches of main channel; natural boundary.

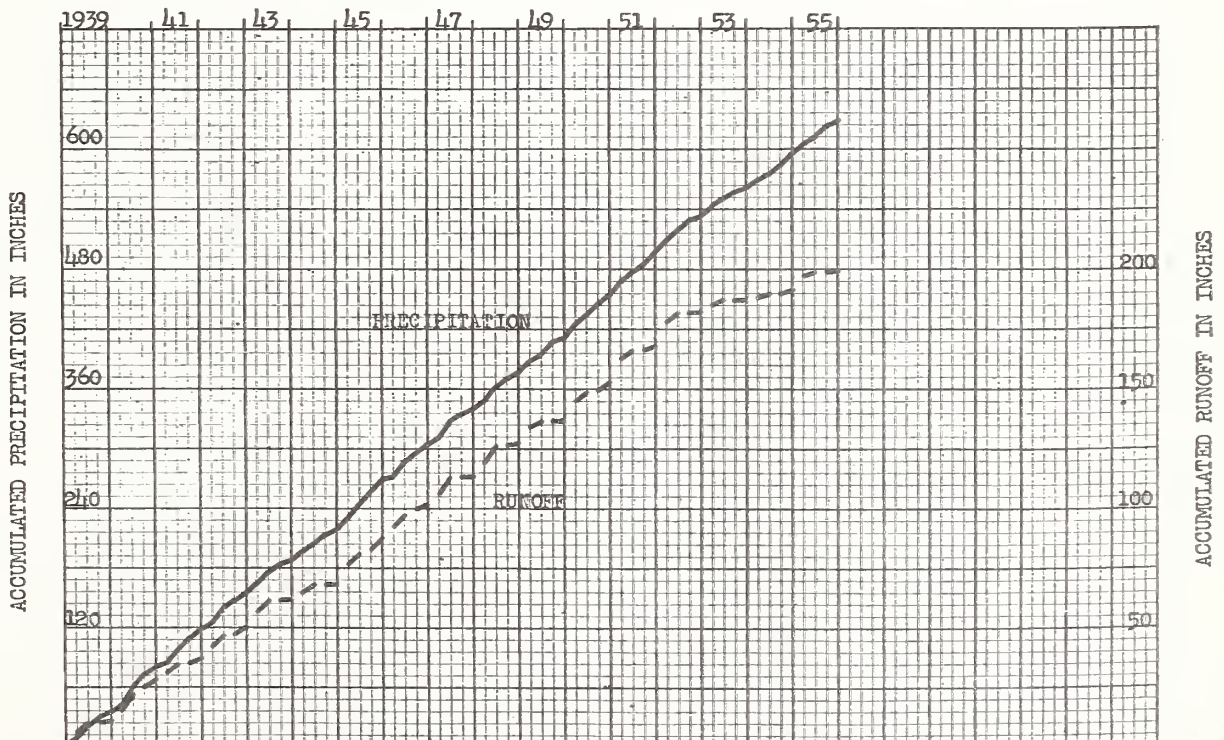
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - Columbus deep notch concrete weir, current meter station; FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover under conservation practice; cropland - 15%; grassland - 55%; woodland - 26%; miscellaneous - 4%. Watershed 94 occupies the upper 60%, Watershed 92 the upper 36%; Watershed 5 lies within the north and west boundary, and Watershed 10 within the southwest quadrant of this watershed.

GENERALLY REPRESENTS: Conservation practice on mixed cover areas of Keene, Muskingum, and associated silt loams, loams, and stony loams with medium internal drainage, good surface drainage, slight to moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Coshocton, Ohio Watershed 95

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P	2.42	4.35	3.78	3.83	1.43	5.81	5.27	2.01	0.88	4.32	0.59	1.38	36.07
Q	.87	3.24	2.41	2.85	.33	.49	.46	.07	T	.15	.05	.12	11.04
1940 P	1.44	3.56	3.61	4.83	4.24	7.87	3.14	6.82	1.94	1.15	4.49	3.14	46.23
Q	.34	1.48	3.16	3.67	.82	2.73	.94	.81	.33	.10	1.06	2.00	17.44
1941 P	1.82	.43	.92	1.16	6.29	5.54	5.79	4.20	1.30	6.11	1.67	1.64	36.87
Q	1.36	.87	.89	.38	.93	1.90	.63	.24	.05	.55	.72	.70	9.22
1942 P	1.50	2.11	3.29	2.25	5.02	7.40	1.92	2.78	2.42	2.69	2.82	4.23	38.43
Q	.72	1.65	2.25	1.84	1.07	1.80	.27	.11	.06	.11	.44	2.30	12.62
1943 P	2.25	1.72	4.39	2.86	5.90	2.33	3.87	2.86	.57	1.79	1.40	.94	30.88
Q	1.99	1.28	3.28	1.35	2.13	.93	.21	.14	T	.03	.07	.05	11.46
1944 P	.93	1.60	5.69	3.76	2.77	3.17	1.77	4.38	1.70	1.58	.97	2.82	31.14
Q	.14	.28	2.77	2.38	.72	.15	T	.08	.05	.04	.03	.10	6.74
1945 P	1.19	2.77	7.68	4.27	4.75	3.96	3.09	1.07	9.84	2.75	3.64	1.85	46.86
Q	.28	2.11	5.86	1.96	1.98	.49	.17	.02	1.54	1.50	1.68	1.41	19.00
1946 P	.69	3.86	2.25	1.13	5.65	7.15	6.36	2.43	.66	4.01	2.52	2.27	38.98
Q	.81	2.45	1.84	.37	1.70	2.65	2.29	.30	.03	.28	.50	.88	14.10
1947 P	4.74	.46	.99	3.97	5.70	5.88	2.95	2.78	2.99	.85	2.49	1.10	34.90
Q	3.15	.81	.57	1.85	2.83	2.10	.44	.12	.12	.03	.19	.20	12.41
1948 P	2.07	2.45	3.90	5.32	3.61	4.62	3.05	.97	3.76	2.63	2.81	2.37	37.56
Q	.64	2.06	2.58	4.51	2.06	.29	.11	.02	.04	.12	.27	.81	13.51
1949 P	4.86	2.37	2.95	2.63	2.70	2.21	7.34	2.37	2.74	.75	1.12	2.26	34.30
Q	2.93	2.02	1.75	1.36	.49	.08	.32	.02	.03	.01	.03	.16	9.20
1950 P	8.22	3.48	2.40	3.44	3.50	2.03	4.49	2.67	3.54	1.36	5.78	2.65	43.56
Q	4.36	2.74	1.60	1.88	1.42	.29	.12	.05	.24	.06	.75	2.49	16.00
1951 P	4.00	3.08	4.92	3.34	2.16	5.34	3.10	.69	2.67	1.97	4.79	4.83	40.89
Q	3.22	3.55	3.29	2.23	.56	.34	.21	T	.01	.02	.37	2.09	15.89
1952 P	6.07	2.68	3.69	4.20	4.05	2.44	5.13	1.90	2.51	.89	1.73	2.31	37.60
Q	5.07	2.30	2.25	2.26	1.04	.18	.29	.02	.01	T	.03	.12	13.57
1953 P	4.96	1.19	2.59	2.19	3.71	2.29	4.47	.99	1.37	.43	1.06	2.24	27.49
Q	1.44	.70	.98	.91	1.03	.08	.07	.01	0	0	0	.03	5.25
1954 P	2.36	1.78	3.25	2.61	2.12	1.55	3.96	3.58	2.02	6.73	1.52	2.54	34.02
Q	.14	.07	1.08	.91	.55	.04	.02	.03	T	.46	.13	.78	4.21
1955 P	1.21	2.85	4.45	3.78	1.65	2.75	3.92	3.83	2.54	2.10	3.39	.23	32.70
Q	.78	2.16	2.95	1.31	.28	.05	.08	.05	T	.02	.25	.09	8.02
P													
Q													
P													
Q													
P													
Q													
Av. P	2.98	2.40	3.57	3.27	3.84	4.26	4.10	2.73	2.56	2.48	2.52	2.28	36.99
Av. Q	1.66	1.75	2.32	1.88	1.17	.86	.39	.12	.15	.20	.39	.84	11.73
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: Normal P based on 48 yr. record (1907-1954) at Coshocton, Ohio. Quality of records:  
P - fair; Q - good.

LOCATION: Coshooton Co., Ohio; 10 mi. NE of Coshooton, Little Mill Creek, Walhonding River, Muskingum River Basin.

AREA: 4580 ac. (7.16 sq. mi.)

SHAPE: Roughly elliptical, width - 1.9 mi. length - 5.1 mi.

SLOPES: 7% is in 2-6% class; 12% in 6-12%; 45% in 12-18%; 20% in 18-25%; 16% in 25-35%. Aspect SW.

SOILS: Residual; developed from shale and sandstone; topsoil - silt loam, loam, and stony loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Keene silt loam - 29%; Keene (shallow phase) silt loam - 12%; Muskingum silt loam - 11%; mixed silt loams - 21%; mixed loams - 7%; mixed stony loams - 20%.

EROSION: 1-58%; 2-42%.

LAND CAPABILITY: II - 7%; III - 57%; IV - 20%; VI - 16%.

SURFACE DRAINAGE: Good; length of principal waterway - 5.6 mi.; surface flow through 18 major and numerous minor tributaries to the main creek channel; area is highly dissected and has occasional small gullies; valleys are generally narrow and have high gradients except in lower reaches of main

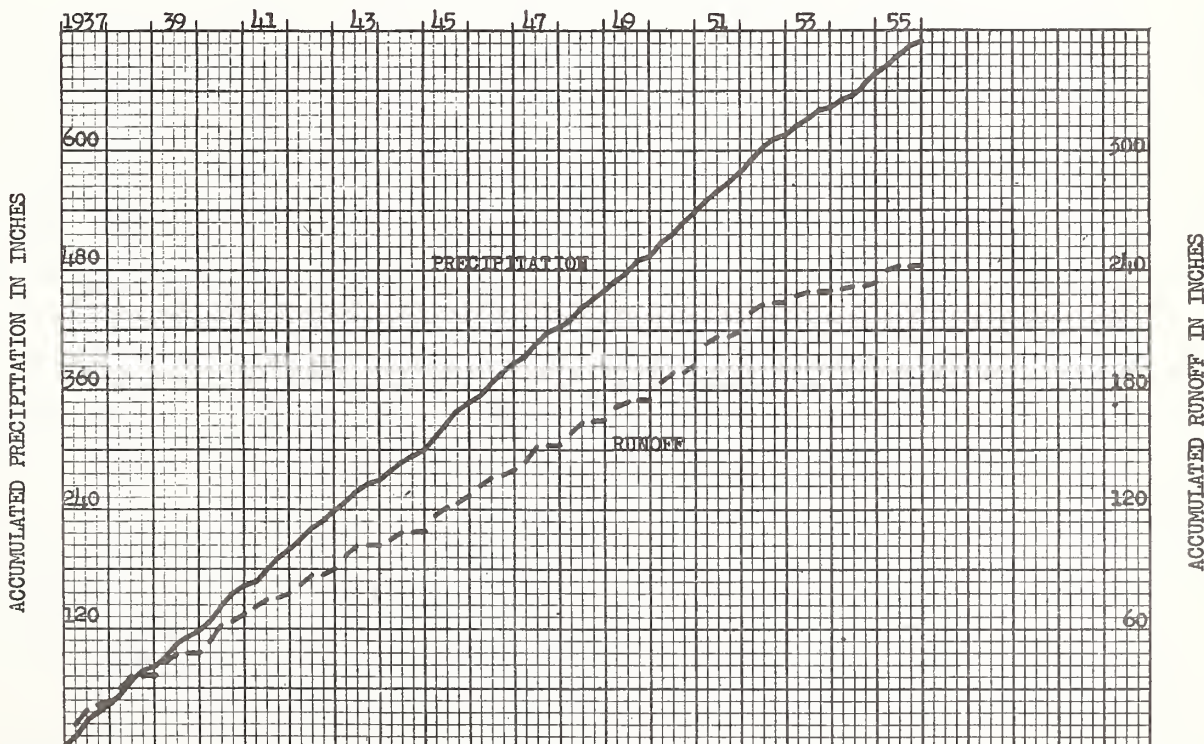
CHARACTER OF FLOW: Perennial, continuous. channel; natural boundary.

INSTRUMENTATION: Runoff - Columbus deep notch concrete weir, current meter station, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Mixed cover under conservation practice; cropland - 18%; grassland - 50%; woodland - 28%; miscellaneous - 4%; Watersheds 10, 5, 92, 94, and 95 are all included within the boundary of this watershed.

GENERALLY REPRESENTS: Conservation practice on mixed cover areas of Keene, Muskingum, and associated silt loams, loams, and stony loams with medium internal drainage, good surface drainage, slight to moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Coshooton, Ohio Watershed 97

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P	10.16	1.09	1.52	3.81	3.40	7.83	5.32	2.09	1.06	3.87	1.20	3.43	44.78
Q	9.60	1.25	.90	2.64	1.07	3.99	1.97	.15	.02	.14	.12	1.49	23.34
1938 P	1.26	2.33	5.84	4.09	5.84	3.90	3.72	3.02	3.12	.58	2.63	1.25	37.58
Q	.78	1.89	4.44	3.07	1.97	.47	.12	.59	.08	.03	.13	.18	13.75
1939 P	2.42	4.35	3.78	3.83	1.43	5.81	5.27	2.01	.88	4.32	.59	1.38	36.07
Q	.93	3.27	2.40	2.81	.32	.46	.64	.07	T	.16	.05	.13	11.24
1940 P	1.44	3.56	3.61	4.83	4.24	7.87	3.14	6.82	1.94	1.15	4.49	3.14	46.23
Q	.39	1.71	3.23	3.88	.94	3.15	.92	1.25	.37	.11	1.25	2.17	19.37
1941 P	1.82	.43	.92	1.16	6.29	5.54	5.79	4.20	1.30	6.11	1.67	1.64	36.87
Q	1.24	.79	.86	.44	1.40	1.99	.90	.42	.08	.66	.82	.79	10.39
1942 P	1.50	2.11	3.29	2.25	5.02	7.40	1.92	2.78	2.42	2.69	2.82	4.23	38.43
Q	.72	1.58	2.30	1.90	1.12	1.45	.22	.09	.05	.09	.46	2.45	12.43
1943 P	2.25	1.72	4.39	2.86	5.90	2.33	3.87	2.86	.57	1.79	1.40	.94	30.88
Q	1.91	1.23	3.32	1.35	2.29	.88	.21	.18	.01	.03	.06	.05	11.52
1944 P	.93	1.60	5.69	3.76	2.77	3.17	1.77	4.38	1.70	1.58	.97	2.82	31.14
Q	.16	.28	2.90	2.41	.55	.13	.01	.08	.04	.04	.03	.09	6.72
1945 P	1.19	2.77	7.68	4.27	4.75	3.96	3.09	1.07	9.84	2.75	3.64	1.85	46.86
Q	.25	2.04	5.95	1.90	2.12	.40	.13	.02	1.49	1.28	1.50	1.38	18.46
1946 P	.69	3.86	2.25	1.13	5.65	7.15	6.36	2.43	.66	4.01	2.52	2.27	38.98
Q	.72	2.49	1.65	.40	1.42	2.43	1.71	.23	.02	.21	.53	.90	12.71
1947 P	4.74	.46	.99	3.97	5.70	5.88	2.95	2.78	2.99	.85	2.49	1.10	31.90
Q	3.23	.74	.56	1.89	2.92	2.13	.45	.17	.15	.04	.20	.22	12.70
1948 P	2.07	2.45	3.90	5.32	3.61	4.62	3.05	.97	3.76	2.63	2.81	2.37	37.56
Q	.65	2.20	2.42	4.18	1.72	.27	.16	.03	.04	.12	.31	.82	12.92
1949 P	4.86	2.37	2.95	2.63	2.70	2.21	7.34	2.37	2.74	.75	1.12	2.26	34.30
Q	3.07	2.05	1.86	1.37	.51	.08	.58	.05	.06	.02	.04	.24	9.93
1950 P	8.22	3.48	2.40	3.44	3.50	2.03	4.49	2.67	3.54	1.36	5.78	2.65	43.56
Q	4.87	2.73	1.56	1.93	1.61	.30	.16	.07	.53	.07	1.00	2.82	17.65
1951 P	4.00	3.08	4.92	3.34	2.16	5.34	3.10	.69	2.67	1.97	4.79	4.83	40.89
Q	3.49	3.55	3.60	2.23	.56	.35	.24	.01	.02	.02	.38	2.27	16.72
1952 P	6.07	2.68	3.69	4.20	4.05	2.44	5.13	1.90	2.51	.89	1.73	2.31	37.60
Q	5.06	2.44	2.39	2.50	1.05	.20	.27	.02	.01	.01	.03	.12	14.10
1953 P	4.96	1.19	2.59	2.19	3.71	2.29	4.47	.99	1.37	.43	1.06	2.24	27.49
Q	1.52	.77	1.06	.95	1.17	.09	.08	.02	T	T	T	.03	5.69
1954 P	2.36	1.78	3.25	2.61	2.12	1.55	3.96	3.58	2.02	6.73	1.52	2.54	34.02
Q	.15	.09	1.24	.99	.57	.05	.01	.03	T	.41	.11	.72	4.37
1955 P	1.21	2.85	4.45	3.78	1.65	2.75	3.92	3.83	2.54	2.10	3.39	.23	32.70
Q	.73	2.25	3.14	1.36	.29	.04	.06	.04	.01	.02	.25	.09	8.28
P													
Q													
Av. P	3.27	2.32	3.58	3.34	3.92	4.42	4.14	2.71	2.51	2.45	2.45	2.29	37.40
Av. Q	2.08	1.76	2.41	2.01	1.24	.99	.47	.19	.16	.18	.38	.89	12.76
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio. Quality of records:  
P - fair; Q - good.



**LOCATION:** Coshocton Co., Ohio; 10 mi. NE of Coshocton; Mill Creek, Walhonding River, Muskingum River Basin.

**AREA:** 17,500 ac. (27.3 sq. mi.) **SHAPE:** Roughly elliptical, width - 3.7 mi., length - 9.3 mi.

**SLOPES:** 7% is in 2-6% class; 12% in 6-12%; 45% in 12-18%; 20% in 18-25%; 16% in 25-35%. Aspect S.

**SOILS:** Residual; developed from shale and sandstone; topsoil - silt loam, loam, and stony loam texture, moderate fine crumb structure, 6-8 in. deep; subsoil - moderate permeability, medium internal drainage, no impeding layer. Keene (shallow phase) silt loam - 33%; Keene silt loam - 18%; Muskingum silt loam - 17%; mixed silt loams, loams, and stony loams - 32%.

**EROSION:** 1 - 58%; 2 - 42%.

**LAND CAPABILITY:** II - 7%; III - 57%; IV - 20%; VI - 16%.

**SURFACE DRAINAGE:** Good; length of principal waterway - 10.4 mi.; surface flow through a network of major and minor tributaries to 2 main creek channels which join 1 mile above the gaging station; area is highly dissected and has occasional small gullies; valleys are generally narrow and have high **CHARACTER OF FLOW:** Perennial, continuous.

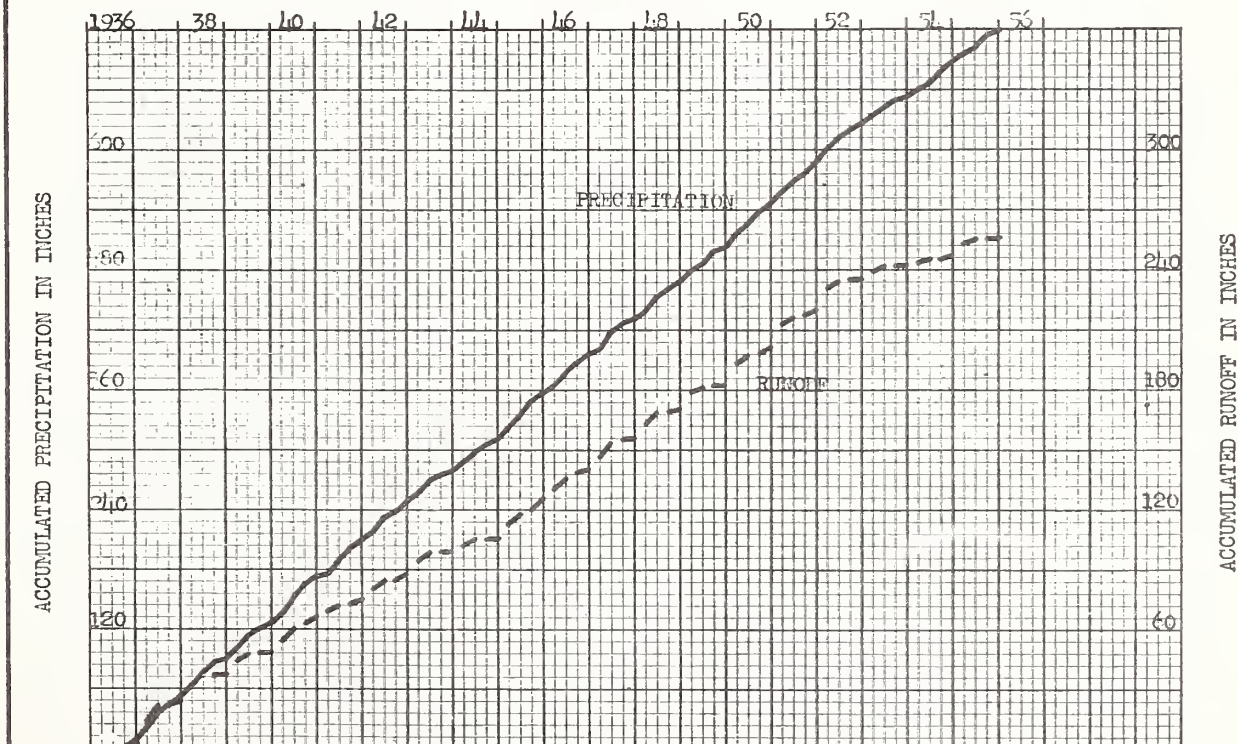
gradients except in lower reaches of both main channels; natural boundary.

**INSTRUMENTATION:** Runoff - Columbus deep notch concrete weir, current meter station, continuous water-level recorder; precipitation - recording gage.

**WATERSHED CONDITIONS:** Mixed cover under conservation practice; cropland - 15%; grassland - 55%; woodland - 26%; miscellaneous - 4%; the Little Mill Creek Watersheds 10, 5, 92, 94, 95, and 97 form the southeast quadrant of this watershed.

**GENERALLY REPRESENTS:** Conservation practice on mixed cover areas of Keene, Muskingum, and associated silt loams, loams, and stony loams with medium internal drainage, good surface drainage, slight to moderate erosion, found on rolling to hilly topography in the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Runoff data furnished by the U. S. Geological Service, Columbus, Ohio.

## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Coshooton, Ohio Watershed 994

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1936 P										3.67	3.10	2.90	9.67
Q										.48	1.28	.70	2.46
1937 P	10.16	1.09	1.52	3.81	3.40	7.83	5.32	2.09	1.06	3.87	1.20	3.43	44.78
Q	8.64	1.11	.97	2.71	1.28	3.74	1.75	.22	.05	.16	.14	1.42	22.19
1938 P	1.26	2.33	5.84	4.09	5.84	3.90	3.72	3.02	3.12	.58	2.63	1.25	37.58
Q	.83	1.99	4.09	2.77	1.88	.51	.14	.77	.11	.04	.15	.19	13.47
1939 P	2.42	4.35	3.78	3.83	1.43	5.81	5.27	2.01	.88	4.32	.59	1.38	36.07
Q	.98	3.10	2.33	2.58	.32	.51	.49	.07	.01	.11	.05	.11	10.66
1940 P	1.44	3.56	3.61	4.83	4.24	7.87	3.14	6.82	1.94	1.15	4.49	3.14	46.23
Q	.33	1.96	2.88	3.51	.80	2.38	1.26	1.11	.37	.10	1.05	1.97	17.72
1941 P	1.82	.43	.92	1.16	6.29	5.54	5.79	4.20	1.30	6.11	1.67	1.64	36.87
Q	1.31	.82	.81	.40	.82	1.50	.60	.38	.09	.57	.85	.78	8.93
1942 P	1.50	2.11	3.29	2.25	5.02	7.40	1.92	2.78	2.42	2.69	2.82	4.23	38.43
Q	.68	1.68	2.46	2.08	.96	1.29	.24	.10	.13	.13	.58	2.63	12.96
1943 P	2.25	1.72	4.39	2.86	5.90	2.33	3.87	2.86	.57	1.79	1.40	.94	30.88
Q	2.08	1.33	3.07	1.26	1.91	.75	.36	.21	.03	.05	.07	.06	11.18
1944 P	.93	1.60	5.69	3.76	2.77	3.17	1.77	4.38	1.70	1.58	.97	2.82	31.14
Q	.19	.31	2.52	2.31	.61	.16	.02	.14	.09	.04	.04	.05	6.48
1945 P	1.19	2.77	7.68	4.27	4.75	3.96	3.09	1.07	9.84	2.75	3.64	1.85	46.86
Q	.21	2.19	4.78	2.26	2.29	.61	.19	.03	1.64	2.12	1.78	1.73	19.83
1946 P	.69	3.86	2.25	1.13	5.65	7.15	6.36	2.43	.66	4.01	2.52	2.27	38.98
Q	.89	2.71	1.58	.38	1.97	2.99	2.40	.39	.07	.34	.75	1.21	15.68
1947 P	4.74	.46	.99	3.97	5.70	5.88	2.95	2.78	2.99	.85	2.49	1.10	34.90
Q	3.78	1.06	.70	2.04	3.00	2.40	.86	.24	.24	.07	.22	.23	14.84
1948 P	2.07	2.45	3.90	5.32	3.61	4.62	3.05	.97	3.76	2.63	2.81	2.37	37.56
Q	.85	2.89	2.92	4.51	2.20	.30	.13	.04	.06	.12	.32	1.01	15.35
1949 P	4.86	2.37	2.95	2.63	2.70	2.21	7.34	2.37	2.74	.75	1.12	2.26	34.30
Q	3.45	2.36	1.97	1.43	.52	.13	.62	.06	.04	.03	.06	.21	10.88
1950 P	8.22	3.48	2.40	3.44	3.50	2.03	4.49	2.67	3.54	1.36	5.78	2.65	43.56
Q	5.62	3.35	1.87	2.20	1.81	.33	.16	.08	.40	.11	.94	2.90	19.77
1951 P	4.00	3.08	4.92	3.34	2.16	5.34	3.10	.69	2.67	1.97	4.79	4.83	40.89
Q	3.74	4.01	3.47	2.52	.63	.31	.29	.02	.04	.04	.47	2.12	17.66
1952 P	6.07	2.68	3.69	4.20	4.05	2.44	5.13	1.90	2.51	.89	1.73	2.31	37.60
Q	5.58	2.52	2.73	2.63	1.11	.22	.27	.05	.03	.01	.03	.14	15.32
1953 P	4.96	1.19	2.59	2.19	3.71	2.29	4.47	.99	1.37	.43	1.06	2.24	27.49
Q	1.74	.90	1.09	1.02	1.43	.17	.15	.04	.01	T	.02	.07	6.64
1954 P	2.36	1.78	3.25	2.61	2.12	1.55	3.96	3.58	2.02	6.73	1.52	2.54	34.02
Q	.23	.10	1.48	1.05	.63	.09	.04	.06	.01	.47	.13	.86	5.15
1955 P	1.21	2.85	4.45	3.78	1.65	2.75	3.92	3.83	2.54	2.10	3.39	.23	32.70
Q	.85	2.71	3.38	1.20	.29	.07	.10	.05	.01	.03	.36	.12	9.17
**Av. P	3.27	2.32	3.58	3.34	3.92	4.42	4.14	2.71	2.51	2.45	2.45	2.29	37.40
**Av. Q	2.21	1.95	2.37	2.05	1.29	.97	.53	.21	.18	.24	.42	.94	13.36
Normal P	3.04	2.63	3.52	3.61	3.73	4.42	4.24	4.15	3.35	2.62	3.00	2.92	41.23

Notes: \*\*Does not include the part year amounts for 1936. Normal P based on 48 yr. record (1907-1954) at Coshooton, Ohio. Quality of records: P - fair; Q - good.



11-55

HAMILTON, OHIO Watershed W-1

LOCATION: Butler Co., Ohio; 12 mi. NW of Hamilton; Indian Creek, Miami River Basin.

AREA: 187 ac.

SHAPE: Roughly rectangular, about 1,800 ft. wide by 1,600 ft. long.

SLOPES: 37% is in 0-2% class; 40% in 2-6%; 17% in 6-12%; 3% in 12-18%; 3% in 18-25%. Aspect S.

SOILS: Forest soils formed on glacial drift of limestone derivation; topsoil - silt loam texture, crumb to platy structure, 8-12 in. deep; subsoil - moderately slow permeability decreasing with depth, no impeding layer, internal drainage - medium to slow. Russell silt loam - 51%; Fincastle silt loam - 29%; Wynn silt loam - 20%.

EROSION: 1 - 19%; 2 - 72%; 3 - 9%.

LAND CAPABILITY: II - 39%; III - 56%; IV-VI - 5%.

SURFACE DRAINAGE: Good; principal waterway - 1.02 mi.; data corrected for pondage below weir; a natural watershed with surface and tile drainage flow to a mild draw; natural boundaries except for small headwater areas diverted by road ditch and terrace.

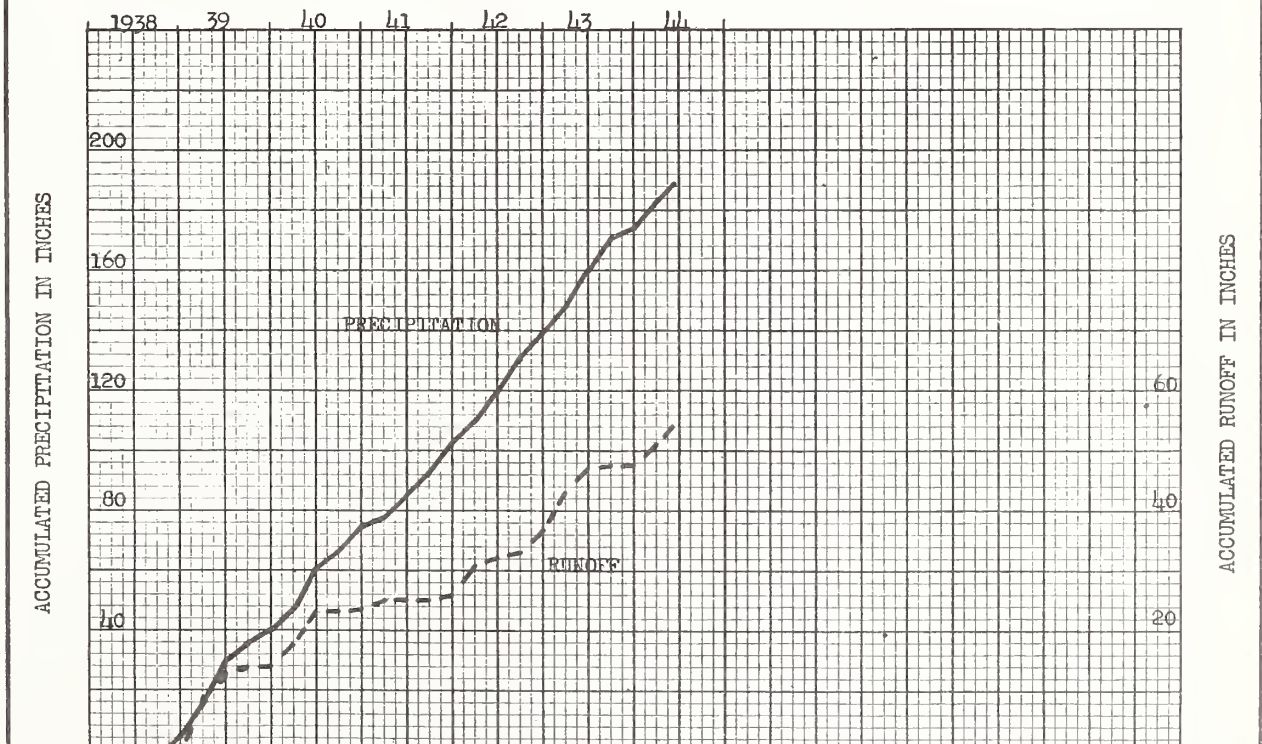
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16 in. broadcrested concrete weir, 5:1 slope, FW-1 recorder; precipitation - one recording and one standard gage.

WATERSHED CONDITIONS: About 70% in rotation (usually corn, wheat, clover), and 30% in permanent pasture and woods.

GENERALLY REPRESENTS: General farming areas of Russell, Fincastle, and Wynn silt loam soils with moderate to slow internal drainage, good surface drainage and moderate erosion, found on gently undulating to rolling topography on Michigan-Indiana-Ohio Till Plain.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Hamilton, Ohio Watershed W-1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P											3.23	1.18	4.41
Q											.25	.13	.38
1939 P	2.54	3.79	4.26	4.97	1.23	7.65	4.42	1.03	1.03	2.61	.97	1.16	35.66
Q	1.65	3.68	2.65	3.82	.03	.85	.87	.01	0	T	0	0	13.56
1940 P	1.33	3.18	2.26	6.23	4.63	2.79	.84	3.12	1.44	1.58	4.06	2.84	34.30
Q	.22	1.99	1.63	4.14	.79	.41	0	.03	0	0	.04	.34	9.59
1941 P	1.64	.55	1.09	1.96	1.73	3.80	3.44	2.31	1.63	5.79	1.60	2.57	28.11
Q	.52	.56	.09	.33	0	.01	.09	0	0	.03	.06	.81	2.50
1942 P	1.53	3.14	2.33	1.61	2.72	5.49	3.12	3.32	4.07	1.96	4.94	2.76	36.99
Q	.67	2.90	1.09	1.05	.01	.45	.01	.10	.72	.01	1.49	2.20	10.70
1943 P	1.16	1.72	5.32	2.73	6.42	2.97	6.47	2.21	1.79	1.90	.83	1.24	34.76
Q	.57	1.42	4.25	*.40	3.18	.48	.65	.08	0	0	0	0	11.03
1944 P	.98	3.13	4.41	4.61	*1.66								11.79
Q	0	.50	3.01	2.63	.12								6.26
P													
Q													
P													
Q													
P													
Q													
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**Av. P	1.64	2.48	3.05	3.50	3.35	4.54	3.66	2.40	1.99	2.77	2.48	2.11	33.97
**Av. Q	.73	2.11	1.94	1.95	.80	.44	.32	.04	.14	.01	.32	.67	9.47
Normal P	3.32	2.45	4.17	3.84	3.85	3.76	3.54	3.56	3.48	2.64	3.02	2.93	40.56

Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1938 and 1944. Normal P based on 42 yr. record (1913-1954) at Hamilton, Ohio (Water Works). Quality of records: P - good; Q - good.

11-55

## HAMILTON, OHIO Watershed W-II

LOCATION: Butler Co., Ohio; 7 mi. NW of Hamilton; Indian Creek, Miami River Basin.

AREA: 16.2 ac.

SHAPE: Roughly ovoid, about 700 ft. maximum width by about 1,800 ft. long.

SLOPES: 10% is in 0-2% class; 10% in 2-6%; 41% in 6-12%; 31% in 12-18%; 8% in 18-25%. Aspect W-SW.

SOILS: Forest soils formed on glacial drift of limestone derivation; topsoil - silt loam texture, granular to platy structure, 0-6 in. deep; subsoil - moderately slow permeability decreasing to slow in lower subsoil, bedrock occurs at 22-25 in. over most of area, internal drainage - medium. Wynn silt loam - 64%; Russell silt loam - 29%; Hennepin silt loam - 7%.

EROSION: 1 - 15%; 2 - 9%; 3 - 76%.

LAND CAPABILITY: II - 14%; III - 14%; IV - 61%; VI - 11%.

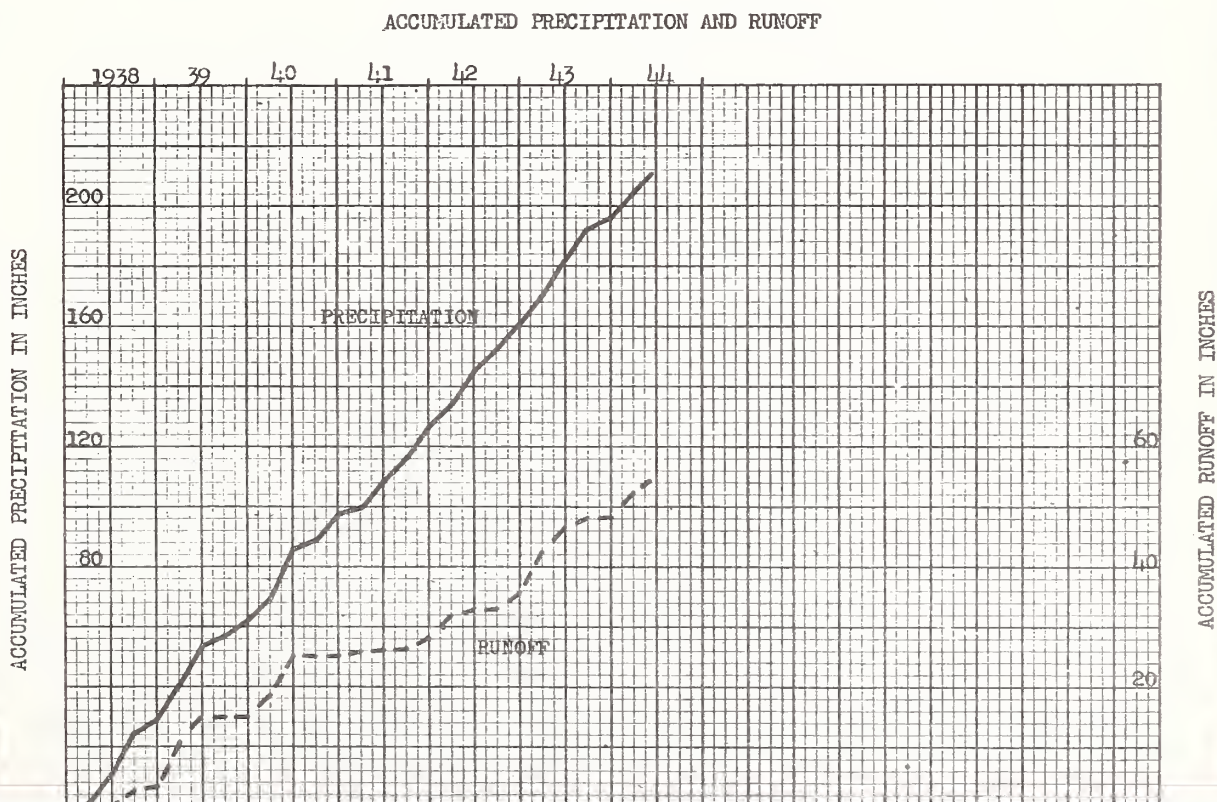
SURFACE DRAINAGE: Good; principal waterway - 1,870 ft.; data corrected for pondage below weir; a natural watershed with surface flow to a mild draw; natural boundaries with small earth dikes at weir.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16 in. broadcrested concrete weir, 2:1 slope, FW-1 recorder; precipitation - one recording and one standard gage.

WATERSHED CONDITIONS: About 95% in permanent pasture and 5% reforested.

GENERALLY REPRESENTS: Permanent pastured areas of Wynn, Russell, and Hennepin silt loam soils with moderate internal drainage, good surface drainage and severe erosion, found on rolling topography of Michigan-Indiana-Ohio Till Plain.



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Hamilton, Ohio Watershed W-II

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P			1.67	1.38	4.77	3.14	4.14	1.53	7.82	0.72	*2.75	1.30	29.22
Q			0	0	0	0	.01	.02	2.74	0	.17	.19	3.13
1939 P	3.14	3.74	4.31	5.16	1.14	6.32	2.28	.82	1.04	2.58	.88	1.24	32.65
Q	2.06	3.00	2.31	3.66	.09	.64	.02	0	0	0	0	0	11.78
1940 P	1.23	3.36	*2.36	7.21	5.37	4.18	.78	1.18	1.41	1.10	4.15	2.62	34.95
Q	.41	1.94	1.24	4.47	1.20	.84	0	0	0	0	.02	.28	10.40
1941 P	1.60	.48	.81	1.77	2.77	4.47	3.83	2.03	1.27	6.26	1.47	3.14	29.90
Q	.41	.22	.04	.08	.20	.05	.10	0	0	.20	.16	1.50	2.96
1942 P	1.77	3.05	2.17	2.01	3.51	5.41	2.94	2.17	2.31	1.16	4.78	2.87	34.15
Q	.72	2.34	.56	1.07	.03	*.12	.01	0	0	0	.64	2.07	7.56
1943 P	1.02	1.69	6.07	2.44	*5.64	*3.70	6.18	1.99	2.72	*1.66	1.00	1.41	35.52
Q	.33	1.13	5.08	.44	2.83	1.05	1.38	.08	.04	.01	.01	0	12.38
1944 P	.83	3.25	3.81	*4.01	2.23								14.13
Q	.38	.99	2.79	*1.87	.14								6.17
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** Av. P	1.75	2.46	3.14	3.72	3.69	4.82	3.20	1.64	1.75	2.55	2.46	2.26	33.44
** Av. Q	.79	1.73	1.85	1.94	.87	.54	.30	.02	.01	.04	.17	.77	9.03
Normal P	3.32	2.45	4.17	3.84	3.85	3.76	3.54	3.56	3.48	2.64	3.02	2.93	40.56

Notes: \*Partially estimated. \*\*Does not include the part year amounts for 1938 and 1944. Normal P based on 42 yr. record (1913-1954) at Hamilton, Ohio (Water Works). Quality of records: P = good; Q = good.



11-55

HAMILTON, OHIO Watershed W-III

LOCATION: Butler Co., Ohio; 15 mi. NW of Hamilton; Indian Creek, Miami River Basin.

AREA: 28.8 ac.

SHAPE: Roughly 2 rectangles joined at one corner, each about 600 ft. wide, one about 1,500 ft. long and one about 1,100 ft. long.

SLOPES: 27% is in 0-2% class; 49% in 2-6%; 24% in 6-12%. Aspect E.

SOILS: Forest soils formed on glacial drift of limestone derivation; topsoil - silt loam texture, crumb to platy structure, 4-12 in. deep; subsoil - moderately slow permeability decreasing with depth, no impeding layer, internal drainage - medium to very slow. Russell silt loam - 71%; Fincastle silt loam - 24%; Brookston silty clay loam - 5%.

EROSION: 1 - 26%; 2 - 49%; 3 - 25%.

LAND CAPABILITY: II - 36%; III - 44%; IV - 20%.

SURFACE DRAINAGE: Excellent; principal waterway - 1,900 ft.; 8 terraces from 800 ft. to 1,450 ft. long; data corrected for pondage below weir; natural boundaries.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16 in. broadcrested concrete weir, 2:1 slope, FW-1 recorder; precipitation - one recording and one standard gage.

WATERSHED CONDITIONS: 100% in terraced crop land under corn, wheat, meadow rotation.

GENERALLY REPRESENTS: Conservation farmed cropland of Russell, Fincastle, and Brookston silt loam soils with moderate to slow internal drainage, excellent surface drainage due to terrace system and moderate erosion, found on undulating topography of Michigan-Indiana-Ohio Till Plain.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

## Watershed W-III

Month		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P Q								1.37 .08	5.77 1.31	0.72 0	2.79 .15	1.24 0	11.89 1.54
1939	P Q	2.71 1.37	3.86 2.82	4.29 2.09	5.28 3.35	1.20 0	7.57 1.21	3.09 .01	.77 0	.93 0	2.81 .14	.95 0	1.12 0	34.58 10.99
1940	P Q	1.19 .14	3.20 1.38	2.07 .74	7.21 4.13	4.52 .53	3.21 .06	.80 0	2.24 .06	1.40 0	1.28 0	3.98 .06	2.70 .11	33.80 7.21
1941	P Q	1.80 .17	.62 .31	.98 .02	2.13 .02	3.16 .44	3.75 .02	2.29 .04	2.38 0	2.07 .02	6.45 .19	1.61 .09	2.70 .65	29.94 1.97
1942	P Q	1.69 .59	3.14 2.15	2.17 .36	1.74 .67	3.10 .01	5.20 .22	3.02 0	3.08 .03	2.06 0	1.43 0	4.65 .64	2.69 .85	33.97 5.52
1943	P Q	1.10 .15	1.94 1.11	5.78 3.92	3.13 .07	6.80 2.17	3.59 .64	4.45 .45	2.31 .29	1.80 0	2.05 0	.95 0	1.38 0	35.28 8.80
1944	P Q	.92 .57	3.00 .12	*4.50 1.09	4.61 1.21	2.30 .01								15.33 3.00
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**Av. P **Av. Q		1.70 .48	2.55 1.55	3.06 1.43	3.90 1.65	3.76 .63	4.66 .43	2.73 .10	2.16 .08	1.65 T	2.80 .07	2.43 .16	2.12 .32	33.52 6.90
Normal	P	3.32	2.45	4.17	3.84	3.85	3.76	3.54	3.56	3.48	2.64	3.02	2.93	40.56

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1938 and 1944. Normal P based on 42 yr. record (1913-1954) at Hamilton, Ohio (Water Works). Quality of records: P = good; Q = good.

11-55

HAMILTON, OHIO Watershed W-IV

LOCATION: Butler Co., Ohio; 10 mi. NW of Hamilton; Indian Creek, Miami River Basin.

AREA: 20.3 ao.

SHAPE: Roughly a right triangle about 1,200 ft. on base by 1,500 ft

SLOPES: 5% is in 0-2% class; 47% in 2-6%; 40% in 6-12%; 8% in 12-18%. Aspect S.

SOILS: Forest soils formed on glacial drift of limestone derivation; topsoil - silt loam texture, crumb to platy structure, 4-11 in. deep; subsoil - moderately slow permeability decreasing with depth, no impeding layer, internal drainage - medium to slow. Russell silt loam - 82%; Fincastle silt loam - 18%.

EROSION: 2 - 82%; 3 - 18%.

LAND CAPABILITY: III - 57%; IV - 25%; VI - 18%.

SURFACE DRAINAGE: Good; principal waterway - 2,720 ft.; data corrected for pondage below weir; a natural watershed with surface flow to a diversion ditch on one boundary of watershed.

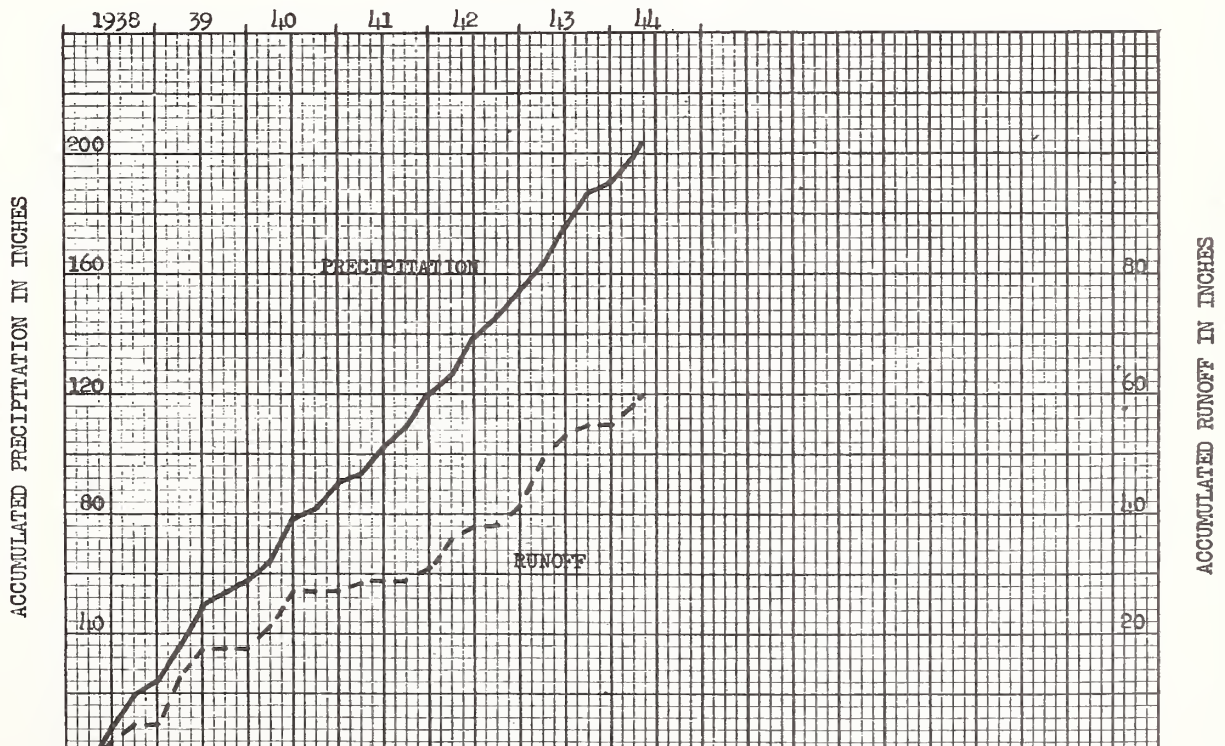
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16 in. broadcrested concrete weir, 3:1 slope, FW-1 recorder; precipitation - one recording and one standard gage.

WATERSHED CONDITIONS: Crop land in corn, wheat, meadow rotation.

GENERALLY REPRESENTS: Prevailing practice on cropland of Russell and Fincastle silt loam soils with moderate to slow internal drainage, good surface drainage and moderate erosion, found on undulating to gently rolling topography of Michigan-Indiana-Ohio Till Plain.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Hamilton, Ohio

Watershed W-IV

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P					5.73	3.04	4.84	0.75	5.35	0.79	2.61	1.25	24.36
Q					1.53	.44	1.20	.02	1.45	0	.06	0	4.70
1939 P	2.76	3.88	4.55	5.44	1.02	6.99	2.76	.72	.86	2.62	.89	1.13	33.62
Q	1.28	3.84	2.80	4.07	T	.86	.02	0	0	.02	0	T	12.89
1940 P	1.20	3.08	2.06	6.70	4.43	2.88	1.00	1.53	1.18	1.26	4.15	2.82	32.29
Q	.26	2.13	.99	4.70	.84	.26	0	0	0	0	.06	.36	9.60
1941 P	1.83	.54	1.00	1.59	2.48	4.33	2.99	2.61	1.44	6.33	1.61	2.83	29.58
Q	.62	.56	.03	.05	.16	*.20	.35	.03	.10	.61	.12	.94	3.77
1942 P	1.61	3.29	2.05	1.87	4.08	5.37	3.13	2.38	2.14	1.51	4.74	*2.72	34.89
Q	.78	3.19	.90	1.14	.48	.62	.04	.23	.05	T	1.19	2.18	10.80
1943 P	1.10	1.71	5.72	*2.51	*6.90	2.77	*6.01	2.06	*3.22	*1.83	.81	1.11	35.75
Q	.62	1.63	4.93	.13	3.57	.61	1.36	0	.23	0	0	0	13.08
1944 P	.87	*2.62	*4.74	*4.60									12.83
Q	.26	.81	*2.38	*1.47									4.92
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** Av. P	1.70	2.50	3.08	3.62	3.78	4.47	3.18	1.86	1.77	2.71	2.44	2.12	33.23
** Av. Q	.71	2.27	1.93	2.02	1.01	.51	.35	.05	.08	.13	.27	.70	10.03
Normal P	3.32	2.45	4.17	3.84	3.85	3.76	3.54	3.56	3.48	2.64	3.02	2.93	40.56

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1938 and 1944. Normal P based on 42 yr. record (1913-1954) at Hamilton, Ohio (Water Works). Quality of records: P - good; Q - good.

11-55

ZANESVILLE, OHIO Cultivated Watershed

LOCATION: Muskingum Co., Ohio; 8 mi. NW of Zanesville; Timber Run, Licking River, Muskingum River Basin.

AREA: 2.55 ac.

SHAPE: Roughly rectangular, about 250 ft. wide by 500 ft. long.

SLOPES: 63% is in 6-12% class; 22% in 12-18%; 15% in 18-25%. Aspect SE.

SOILS: Residual upland derived from sandstone, shale, and grey fire clay; topsoil - silt loam texture, fine granular to medium subangular structure, 0-6 in. deep; subsoil - about equally divided between moderate permeability with no impeding layer and very slow permeability with clay layer which impedes water, internal drainage - rapid. Muskingum silt loam - 50%; Eifort silt loam - 50%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 85%; IV - 15%.

SURFACE DRAINAGE: Good; principal waterway - 500 ft.; a natural watershed with several decided depressed waterways and earth dike boundary.

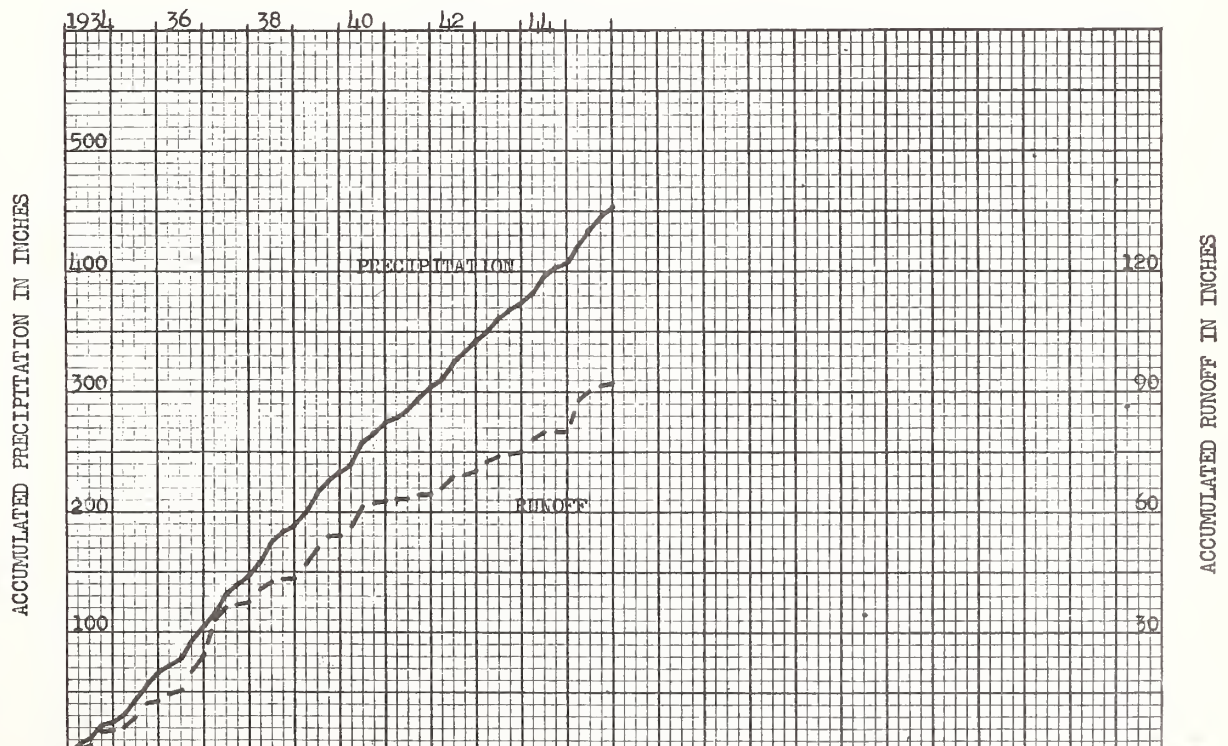
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal Parshall flume, 2 ft. wide and 1.5 ft. deep, Bristol waterstage recorder; precipitation - Fergusson recording gage.

WATERSHED CONDITIONS: Farmed on contour in 3 year rotation of wheat (1934), meadow, and corn. Corn received 150 lbs. 4-10-6 in row; wheat 300 lbs. 2-14-4; lime as needed.

GENERALLY REPRESENTS: Cultivated areas of Muskingum and Eifort silt loam soils with rapid internal soil drainage, good surface drainage and moderate erosion, found on rolling to hilly topography of the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Zanesville, Ohio, Cultivated Watershed**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P Q	1.62 .22	0.35 0	2.08 .62	1.27 0	0.90 T	4.06 .70	0.99 .09	6.03 2.86	4.14 .71	0.58 .02	1.07 .06	0.78 0	23.87 5.28
1935 P Q	1.78 .04	1.90 .14	3.29 .62	1.82 .06	5.54 1.97	4.85 .67	3.53 .25	8.22 2.85	2.79 .25	1.86 0	3.28 .26	2.41 .46	41.27 7.57
1936 P Q	1.46 .38	2.15 .60	3.06 .54	3.48 .86	1.97 .02	1.40 0	5.85 2.60	4.98 1.54	2.78 .73	5.58 1.78	3.56 2.03	2.53 .59	38.80 11.67
1937 P Q	10.52 7.96	1.24 .47	1.71 .25	2.72 .04	4.56 .65	6.69 2.38	2.97 .20	3.92 .34	1.43 0	3.63 .04	1.19 0	3.91 .48	44.49 12.81
1938 P Q	1.56 .37	2.85 1.25	5.09 1.68	3.67 .89	6.64 .69	4.65 .50	2.49 0	3.94 .17	4.68 .49	.66 0	3.04 .05	1.46 .15	40.73 6.24
1939 P Q	2.60 .66	4.95 2.42	3.21 .36	4.63 1.16	.97 0	10.13 2.66	3.77 .97	4.98 1.76	2.46 .47	3.65 .19	.87 0	1.40 T	43.62 10.65
1940 P Q	1.15 .39	2.99 .67	3.10 1.49	7.57 2.99	5.13 .50	5.54 1.11	2.09 .14	4.21 .38	2.25 .39	1.95 .09	3.91 .35	2.61 .38	42.50 8.88
1941 P Q	2.06 .05	.26 .26	.50 .01	1.02 0	4.62 .01	2.00 0	4.93 .36	4.42 .16	2.01 .41	4.11 .01	1.86 .05	1.71 .09	29.50 1.41
1942 P Q	1.22 .06	2.35 .23	3.63 1.38	2.81 1.10	4.21 1.03	4.89 .65	3.13 .14	2.46 .22	4.05 .21	2.00 0	3.04 .26	3.97 .72	37.76 6.00
1943 P Q	1.72 .38	1.76 .43	4.42 1.57	2.72 .47	4.61 .52	3.38 .37	3.78 .11	3.18 .39	.87 .01	1.98 .01	1.57 0	1.26 .34	31.25 4.60
1944 P Q	.85 .79	1.92 .06	5.41 2.30	3.47 .94	5.28 .76	4.92 .12	1.75 0	3.83 .04	1.56 0	.87 0	1.35 0	3.28 .04	34.49 5.05
1945 P Q	.66 0	2.73 .30	9.89 7.62	4.10 1.18	4.85 .35	4.95 .90	2.56 0	.89 0	6.99 1.05	2.42 .50	3.31 .16	1.49 .24	44.84 12.30
P Q													
F Q													
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	2.27 .94	2.12 .57	3.78 1.54	3.27 .81	4.11 .54	4.79 .84	3.15 .40	4.26 .89	3.00 .39	2.44 .22	2.34 .27	2.23 .29	37.76 7.70
Normal P	2.89	2.40	3.44	3.06	3.75	3.97	4.19	3.63	2.70	2.38	2.53	2.65	37.59

**Notes:** Normal P based on 67 yr. record (1888-1954) at Zanesville, Ohio, Look 10. Quality of records: P = good; Q = good.



11-55

ZANESVILLE, OHIO Pasture Watershed

LOCATION: Muskingum Co., Ohio; 8 mi. NW of Zanesville; Timber Run, Licking River, Muskingum River Basin.

AREA: 3.57 ac.

SHAPE: Roughly fan shaped of 300 ft. radius and 800 ft. arc.

SLOPES: 82% is in 12-18% class; 18% in 18-25%. Aspect SE.

SOILS: Residual upland derived from sandstone, shale, and grey fire clay; topsoil - silt loam texture, fine granular or crumb structure, 6-8 in. deep; subsoil - moderate permeability with no impeding layer, some areas of very slow permeability with clay layer which impedes water, internal drainage - rapid. Muskingum silt loam - 80%; Eifort silt loam - 20%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 82%; IV - 18%.

SURFACE DRAINAGE: Good; principal waterway - 500 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

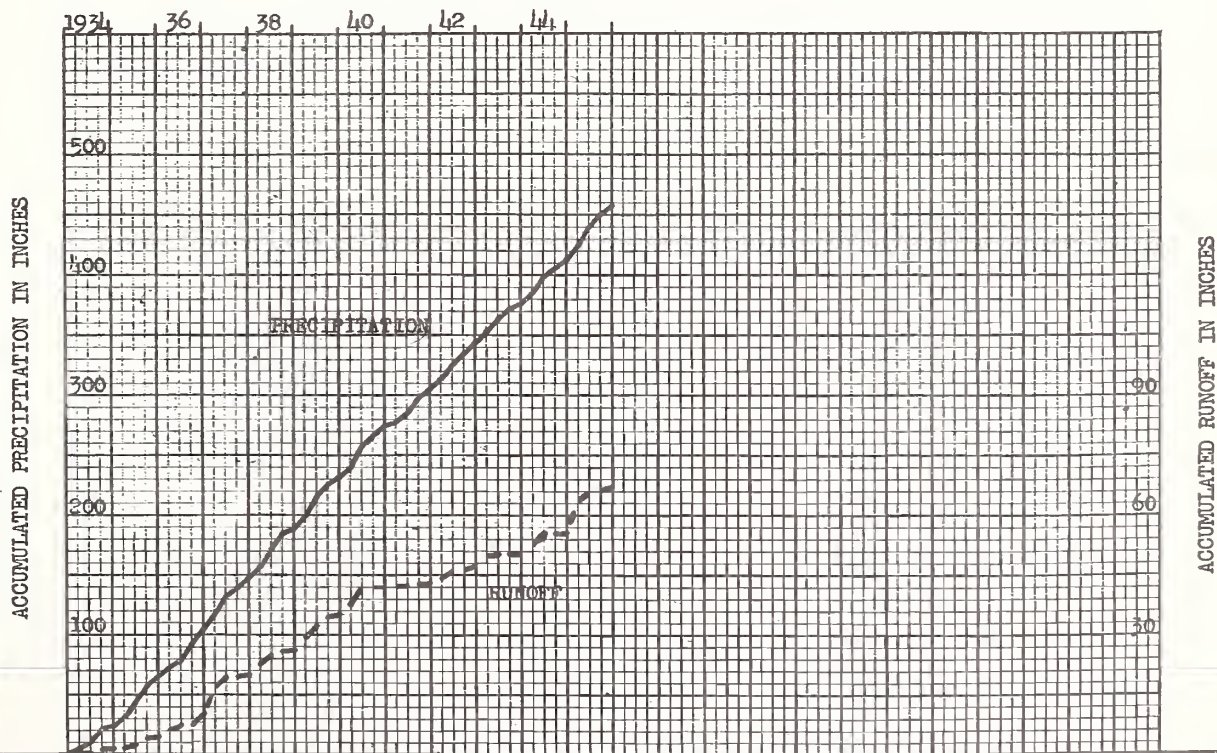
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal Parshall flume, 1 ft. wide and 1.5 ft. deep, Bristol waterstage recorder; precipitation - Fergusson recording gage.

WATERSHED CONDITIONS: Good grass cover throughout the period of record. Moderate grazing by horses or sheep during growing season or mowing used to keep pasture under control. 300 lbs. 0-14-6 every third year with occasional applications of sulphate of ammonia and manure; lime as needed.

GENERALLY REPRESENTS: Pastured areas of Muskingum and Eifort silt loam soils with rapid internal soil drainage, good surface drainage and moderate erosion found on rolling to hilly topography of the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)    Zanesville, Ohio, Pasture Watershed**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P Q	1.62 .33	0.35 0	2.08 .04	1.27 0	0.90 0	4.06 0	0.99 0	6.03 .44	4.14 .15	0.58 0	1.07 0	0.78 0	23.87 .96
1935 P Q	1.78 0	1.90 .02	3.29 .21	1.82 .01	5.54 1.00	4.85 .14	3.53 T	8.22 1.74	2.79 .04	1.86 0	3.28 .22	2.41 .34	41.27 3.72
1936 P Q	1.50 .03	2.32 .56	3.10 1.19	3.48 1.10	1.95 0	1.38 0	6.24 .29	4.89 .01	2.78 .02	5.57 .66	3.58 1.66	2.47 .27	39.26 5.79
1937 P Q	10.18 6.52	1.22 .05	1.87 .20	2.79 0	4.57 .38	6.89 1.89	2.77 0	3.31 0	1.65 0	3.50 0	1.16 0	3.62 .78	43.53 9.82
1938 P Q	1.67 .30	2.97 .67	5.13 1.49	3.73 .77	6.61 .98	4.69 .63	2.38 0	3.90 .21	4.86 .64	.59 0	3.15 T	1.37 .14	41.05 5.83
1939 P Q	2.47 .88	5.08 2.20	3.30 .50	4.66 1.44	.99 0	9.86 1.46	3.70 .91	4.35 .93	2.38 .25	3.68 .25	.89 0	1.34 0	42.70 8.82
1940 P Q	1.21 .24	3.28 .80	3.07 1.43	8.27 3.92	5.17 .11	5.82 .32	1.69 T	4.10 0	2.40 T	1.88 T	3.61 .21	2.57 .20	43.07 7.23
1941 P Q	2.09 0	.45 .01	.78 0	1.03 0	4.82 0	2.01 0	5.69 .36	4.82 .06	2.14 .40	4.09 0	1.79 .02	1.61 .12	31.32 .97
1942 P Q	1.33 .07	2.29 .25	3.68 .93	2.90 1.17	4.20 .06	5.33 .31	3.25 .02	2.43 T	3.92 0	2.01 0	3.01 .08	4.32 1.46	38.67 4.35
1943 P Q	1.79 .22	1.72 .21	4.51 2.13	2.70 .16	4.48 .01	3.35 .03	4.45 0	3.51 .38	.85 0	2.02 0	1.66 0	1.20 .06	32.24 3.20
1944 P Q	.83 .12	2.05 .06	5.55 1.89	3.43 1.31	5.57 .93	4.92 .30	1.63 0	4.55 .12	1.51 0	.91 0	1.33 0	3.56 .01	35.84 4.74
1945 P Q	.75 0	3.09 1.50	9.38 6.90	4.58 .78	4.82 1.07	4.88 .24	2.41 0	.85 0	6.86 .59	2.31 .15	3.50 .38	1.46 .15	44.89 11.76
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	2.27 .73	2.23 .53	3.81 1.41	3.39 .89	4.13 .38	4.84 .44	3.23 .13	4.25 .32	3.02 .17	2.41 .09	2.34 .21	2.23 .29	38.15 5.59
Normal P	2.89	2.40	3.44	3.06	3.75	3.97	4.19	3.63	2.70	2.38	2.53	2.65	37.59

**Notes:** Normal P based on 67 yr. record (1888 - 1954) at Zanesville, Ohio, Look 10. Quality of records: P = good; Q = good.



11-55

ZANESVILLE, OHIO Wooded Watershed

LOCATION: Muskingum Co., Ohio; 8 mi. NW of Zanesville; Timber Run, Licking River, Muskingum River Basin.

AREA: 2.23 ac.

SHAPE: Roughly fan shaped of 350 ft. radius and 450 ft. arc.

SLOPES: 47% is in 6-12% class; 41% in 12-18%; 12% in 18-25%. Aspect S-SW.

SOILS: Residual upland derived from sandstone and shale; topsoil - silt loam texture, fine granular or crumb structure with a 3 in. leaf litter, 6-8 in. deep; subsoil - moderate permeability, no impeding layer, internal drainage - rapid. Muskingum silt loam - 100%.

EROSION: 1 - 100%.

LAND CAPABILITY: III - 88%; IV - 12%.

SURFACE DRAINAGE: Good; principal waterway - 400 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

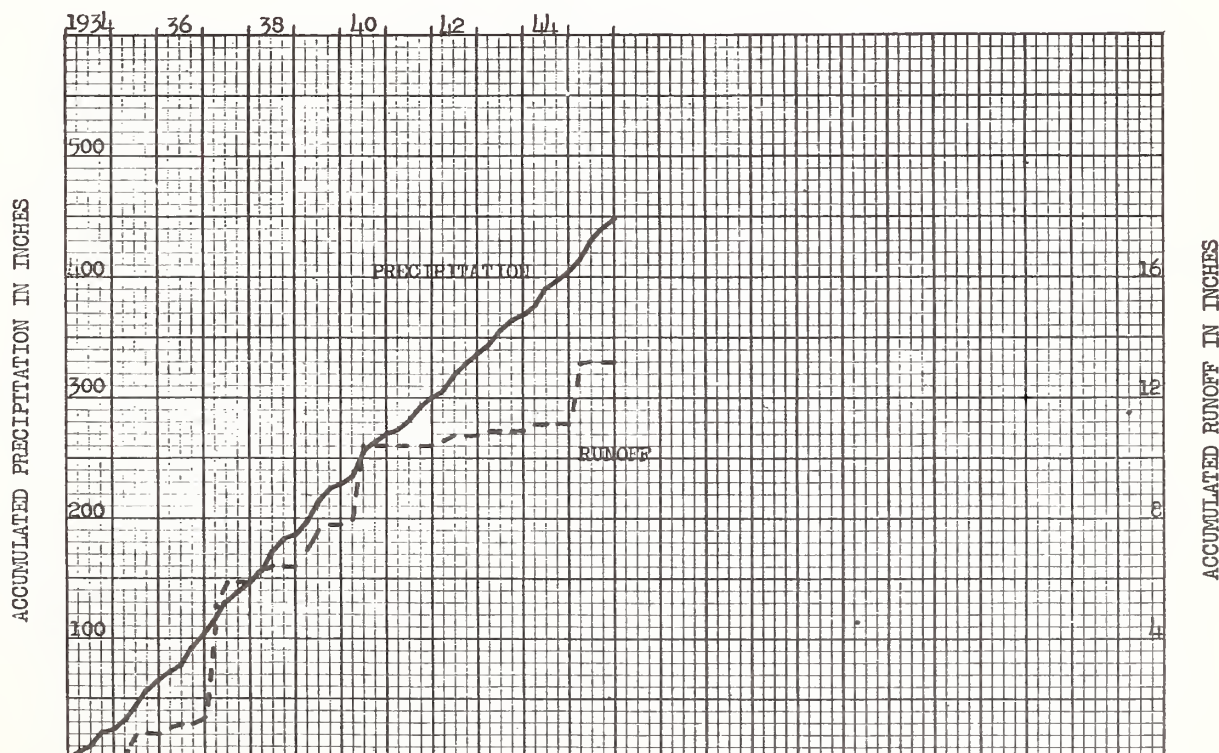
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - sheet metal Parshall flume, 2 ft. wide and 1.5 ft. deep, Bristol waterstage recorder; precipitation - Fergusson recording gage.

WATERSHED CONDITIONS: Second-growth hardwoods; last logging in 1910; some light sheep grazing prior to 1932; no evidence of burning; crown canopy estimate in June 1939 - 0.6; 2 to 3 in. leaf litter; no bare areas.

GENERALLY REPRESENTS: Wooded areas of Muskingum silt loam soil with rapid internal soil drainage, good surface drainage and moderate erosion, found on rolling to hilly topography of the Allegheny-Cumberland Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Ohio Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Zanesville, Ohio, Wooded Watershed

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P	1.62	0.35	2.08	1.27	0.90	4.06	0.99	6.03	4.14	0.58	1.07	0.78	23.87
Q	T	0	.01	0	0	0	0	0	T	0	0	0	.01
1935 P	1.78	1.90	3.29	1.82	5.54	4.85	3.53	8.22	2.79	1.86	3.28	2.41	41.27
Q	0	0	0	0	.78	.01	0	.02	T	0	0	.01	.82
1936 P	1.48	2.31	2.85	3.46	2.00	1.29	5.96	4.86	2.70	5.53	3.34	2.43	38.21
Q	.03	.06	.06	.16	0	0	.01	T	0	.01	.18	.02	.53
1937 P	10.52	1.24	1.71	2.72	4.56	6.69	2.97	3.92	1.43	3.63	1.19	3.91	44.49
Q	3.72	0	.01	0	.02	.76	0	0	0	0	0	0	4.51
1938 P	1.52	2.87	5.12	3.39	6.28	4.57	2.35	3.77	4.61	.62	2.74	1.46	39.30
Q	T	.01	.37	.13	.04	.01	0	T	T	0	0	0	.56
1939 P	2.31	4.60	3.20	4.57	.97	9.89	3.84	4.73	2.39	3.63	.86	1.21	42.20
Q	.05	.32	.12	.17	0	.57	.14	.03	0	0	0	0	1.40
1940 P	1.17	2.82	3.02	7.39	5.11	5.99	1.88	4.01	2.05	1.85	3.82	2.60	41.71
Q	0	0	.11	2.14	.25	.11	T	0	T	0	0	0	2.61
1941 P	2.06	.26	.50	.97	4.70	2.06	4.84	4.61	1.92	3.88	1.84	1.68	29.32
Q	0	0	0	0	0	0	T	0	.01	0	0	0	.01
1942 P	1.10	2.38	3.63	2.81	4.21	4.89	3.13	2.46	4.05	2.00	3.04	3.97	37.67
Q	0	T	.14	.14	.02	.01	T	T	0	0	T	.01	.32
1943 P	1.72	1.76	4.42	2.72	4.61	3.38	3.78	3.18	.87	1.98	1.57	1.26	31.25
Q	0	0	.16	T	0	0	0	T	0	0	0	0	.16
1944 P	.85	1.92	5.41	3.47	5.28	4.92	1.75	3.83	1.56	.87	1.35	3.28	34.49
Q	0	0	.20	T	.02	T	0	0	0	0	0	0	.22
1945 P	.66	2.73	9.89	4.10	4.85	4.95	2.56	.89	6.99	2.42	3.31	1.49	44.84
Q	0	.02	1.98	.02	.02	0	0	0	0	0	0	0	2.04
P													
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P													
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P													
Q													
Av. P	2.23	2.10	3.76	3.22	4.08	4.80	3.13	4.21	2.96	2.40	2.28	2.21	37.38
Av. Q	.32	.03	.26	.23	.10	.12	.01	T	T	T	.02	T	1.09
Normal P	2.89	2.40	3.44	3.06	3.75	3.97	4.19	3.63	2.70	2.38	2.53	2.65	37.59

Notes: Normal P based on 67 yr. record (1888 - 1954) at Zanesville, Ohio, Lock 10. Quality of records: P - good; Q - good.

LOCATION: Clark Co., Wis.; 2 mi. S. of Colby; Big Eau Pline River, Wisconsin River Basin.

AREA: 345 ac.

SHAPE: Roughly rectangular, about 2,500 ft. wide by 6,000 ft. long.

SLOPES: 18% is in 0-1 $\frac{1}{2}$ % class; 79% in 1 $\frac{1}{2}$ -4%; 3% in 4-7%.

SOILS: Loessial over glacial till; topsoil - medium textured, granular structure, moderately deep (6-8 in.); subsoil - fine textured, platy structure, slowly permeable; internal drainage - very slow; Withee silt loam - 61%; Auburndale silt loam - 33%; Cable silt loam - 4%; Loyal silt loam - 2%.

EROSION: 1 - 67%; 2 - 33%.

LAND CAPABILITY: II - 2%; III - 61%; IV - 33%; V - 4%.

SURFACE DRAINAGE: Fair; principal waterway - 6,800 ft.; gravel road, 2,700 ft. long, N-S near center of area; culvert capacity small, road overtops during intense storms.

CHARACTER OF FLOW: Ephemeral, continuous.

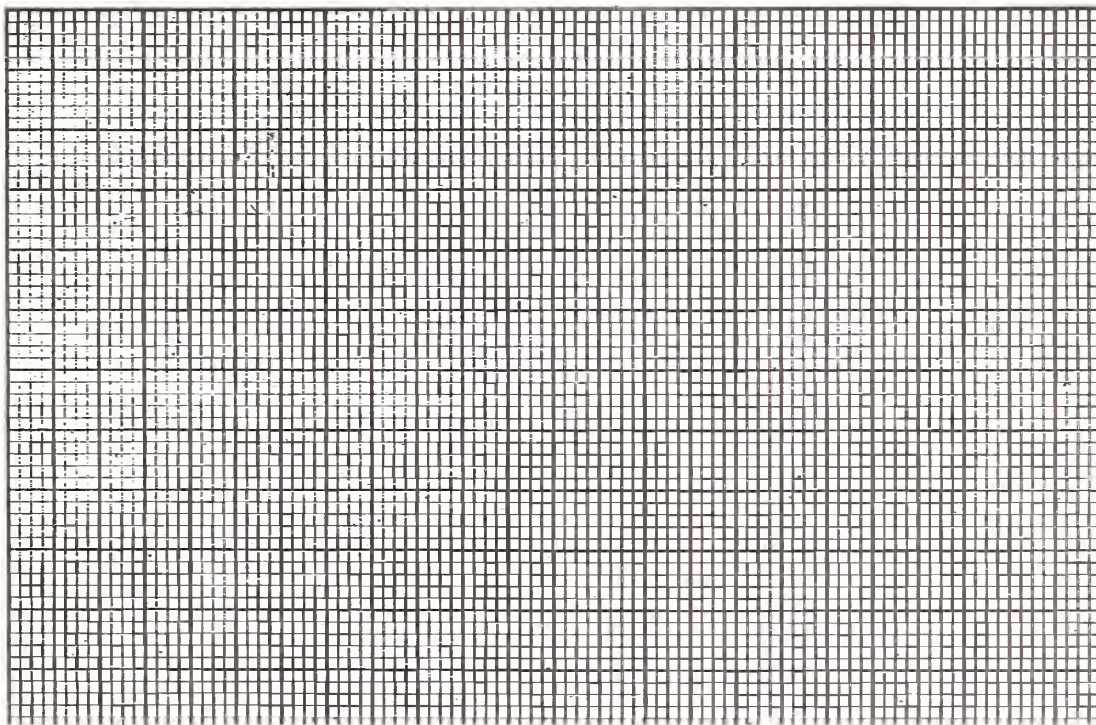
INSTRUMENTATION: Runoff - 16" broadcrested concrete weir with 5:1 side slopes, continuous water stage recorder; precipitation - 3 recording gages (May-October); 1 standard gage (November-April).

WATERSHED CONDITIONS: 11% in woods; 13% in permanent pasture; 76% generally farmed in 3 yr. rotation of corn, oats, clover. No special soil conservation measure being applied.

GENERALLY REPRESENTS: Cultivated areas of the Central Wisconsin Silty area having slow surface and internal drainage, and moderate erosion.

#### ACCUMULATED PRECIPITATION AND RUNOFF

ACCUMULATED PRECIPITATION IN INCHES



ACCUMULATED RUNOFF IN INCHES

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Colby, Wis., Watershed W-1**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1949 P Q					1.36 T	4.89 .08	6.56 .48	2.41 .07	1.79 0	1.93 T	1.30 T	0.74 .13	20.98 .76
1950 P Q	2.08 NR	0.35 NR	2.08 NR	1.91 NR	4.15 .38	3.90 .14	5.75 .40	2.46 T	1.27 T	1.25 T	*.95 0	1.21 NR	27.36 .92
1951 P Q	.45 NR	1.78 NR	2.45 NR	3.31 NR	2.80 .07	4.66 .24	4.83 1.24	2.43 0	3.70 .02	2.73 .15	*1.45 0	*1.20 NR	31.79 1.72
1952 P Q	1.34 NR	.57 NR	1.28 NR	1.50 NR	3.51 .01	4.40 .04	4.66 .34	5.78 .59	.08 0	.09 0	1.39 0	.69 NR	25.29 .98
1953 P Q	.59 NR	2.30 NR	2.22 NR	3.39 NR	1.48 .08	3.95 .01	6.12 .33	1.99 .08	.70 0	.24 0	1.80 0	1.67 NR	26.45 .50
1954 P Q	3.40 NR	.74 NR	1.54 NR	5.08 1.09	2.48 .68	4.29 .13	3.98 .16	3.65 .01	5.66 .42	3.64 1.35	.56 0	.36 NR	35.38 3.84
1955 P Q	.44 NR	.78 NR	1.73 NR	2.38 NR	4.03 .12	3.61 .55	4.00 .05	4.08 .09	1.40 0	2.59 .01	.53 0	.65 NR	26.22 .82
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Av. P Av. Q	1.38	1.09	1.88	2.93	2.83 .19	4.24 .17	5.13 .43	3.26 .12	2.09 .07	1.78 .22	1.14	.93	28.68
Normal P	1.16	1.19	1.80	2.63	3.99	5.08	3.47	3.70	3.92	2.60	1.75	1.30	32.59

**Notes:** \*Partially estimated. \*\*Av. P and Q based on entire period of record. Normal P based on 65 yr. record(1890-1954) at Neillsville, Wis. No record of melting snow which usually occurs in March and April. NR - no record. Quality of records: P - good; Q - good.



LOCATION: Vernon Co., Wis.; in Village of Coon Valley; Coon Creek, Mississippi River Basin.

AREA: 49,400 ac. (77.2 sq. mi.) SHAPE: Roughly circular, diameter about 10 miles.

SLOPES: 11% is in 0-2% class; 11% in 2-6%; 13% in 6-10%; 14% in 10-15%; 11% in 15-20%; 13% in 20-30%; 27% in over 30%. Aspect W-SW.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (6-12 in.); subsoil - moderately permeable; internal drainage - medium. Fayette silt loam - 20%; Dubuque silt loam - 49%; rough broken - 20%; Gale silt loam - 2%; Hixton sandy loam - 2%; well drained alluvium and colluvium - 4%; poorly drained alluvium - 3%.

EROSION: 1 - 34%; 2 - 59%; 3 - 1%; + - 6%.

LAND CAPABILITY: I - 1%; II - 11%; III - 18%; IV - 31%; VI - 15%; VII - 24%.

SURFACE DRAINAGE: Good; principal waterway - 13.0 mi., area well dissected.

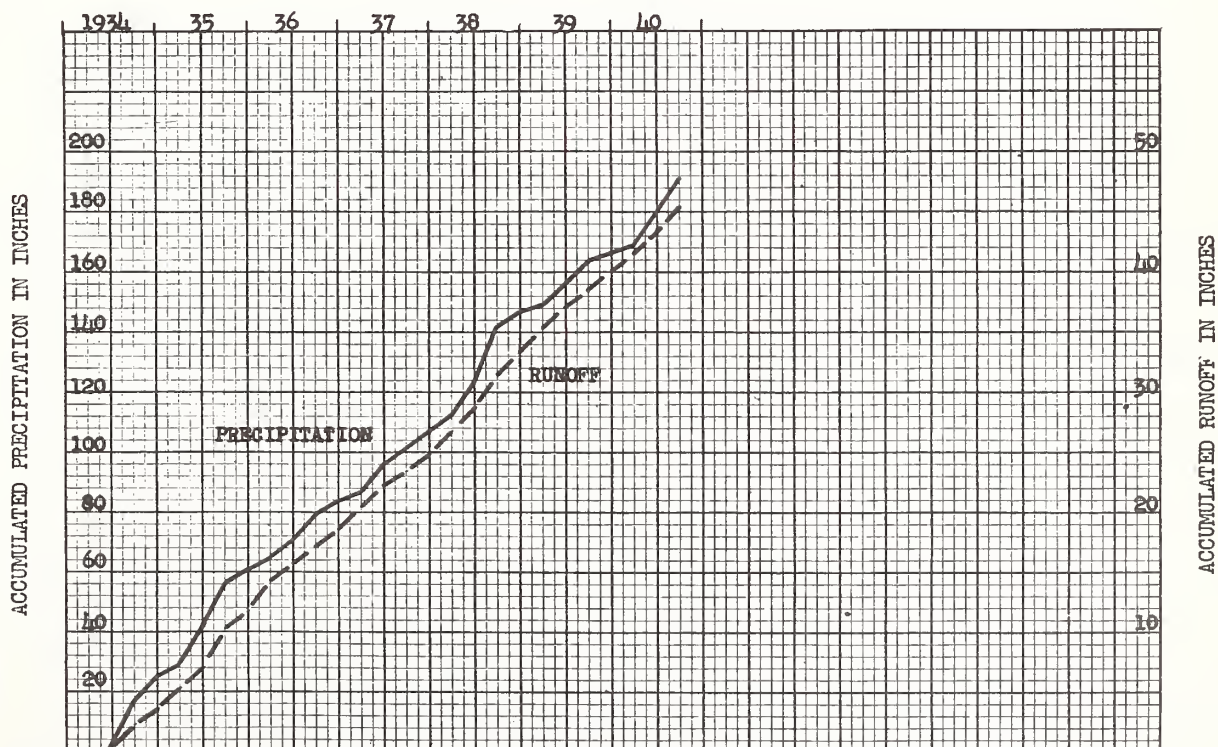
CHARACTER OF FLOW: Perennial, continuous.

INSTRUMENTATION: Runoff - natural control, continuous water stage recorder, rating established by current meter; precipitation - 3 recording and 2 standard gages.

WATERSHED CONDITIONS: Prior to 1934 - there were few soil conservation practices on the area. Between 1934 and 1940 - nearly half the area was placed under agreement to apply such soil conserving practices as: strip cropping, contour tillage, improved rotations, protected woodlots, terracing and gully control structures.

GENERALLY REPRESENTS: Mixed cover areas of the Upper Mississippi Loess Hills having medium internal drainage, good surface drainage and moderate erosion found in the unglaciated section of NW Illinois, NE Iowa, SE Minnesota, and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA, US Geological Survey, and Wisconsin Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Coon Valley, Wis. Watershed No. 1\***

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P						**3.75	**6.08	2.08	5.32	2.02	5.30	0.94	25.49
Q						.46	.79	.37	.48	.43	.53	.46	3.52
1935 P	**1.95	0.56	1.83	3.07	4.37	3.88	5.12	7.39	2.15	2.35	1.92	.63	35.22
Q	.40	.36	.91	.58	.70	.58	.80	1.91	.51	.52	.52	.47	8.26
1936 P	.62	1.33	1.85	.72	3.67	1.99	.66	3.26	4.78	2.18	.92	1.31	23.29
Q	.44	.44	1.57	.60	.60	.47	.40	.41	.49	.47	.46	.45	6.80
1937 P	1.88	.55	.47	2.62	3.46	3.24	.42	2.86	2.16	3.82	1.28	.41	23.17
Q	.44	.53	.99	.69	.58	.52	.42	.42	.40	.49	.46	.43	6.37
1938 P	1.05	1.12	2.36	2.68	5.19	4.23	4.46	4.91	8.93	.57	2.47	.94	38.91
Q	.46	.70	.73	.55	.67	.58	.75	.64	1.52	.57	.60	.53	8.30
1939 P	.99	1.39	.52	2.09	1.84	3.36	1.92	4.64	1.22	1.38	.75	.50	20.60
Q	.60	.49	.99	.66	.56	.53	.49	.56	.44	.49	.48	.48	6.77
1940 P	.49	.55	1.30	2.69	2.87	5.60	2.20	8.53	.04				24.27
Q	.43	.44	.72	.65	.50	.59	.46	1.11	.46				5.36
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*** Av. P	1.16	.92	1.39	2.31	3.57	3.72	2.98	4.81	3.51	2.05	2.11	.79	29.32
*** Av. Q	.46	.49	.98	.62	.60	.53	.59	.77	.61	.50	.51	.47	7.13
Normal P	1.24	1.18	1.85	2.95	3.93	4.50	3.62	3.36	3.90	2.31	1.95	1.30	32.09

**Notes:** \* Listed in U.S. Geological Survey, Water Supply Papers as Coon Creek at Coon Valley, Wis.  
 \*\* Partially estimated. \*\*\* Includes part year amounts for 1934 and 1940. Normal P based on 65 yr. record (1891-1955) at Hillsboro, Wis. Months of Jan., Feb., Mar., Apr., and Dec. include snow and snow melt. Quality of records: P - good; Q - good.



**LOCATION:** Monroe Co., Wis.; 1-1/2 mi. N.W. of Leon; Little LaCrosse River, LaCrosse River, Mississippi River Basin.

**AREA:** 49,344 ac. (77.1 sq. mi.) **SHAPE:** Roughly circular, diameter about 10 miles.

**SLOPES:** 11% is in 0-2% class; 16% in 2-6%; 11% in 6-10%; 10% in 10-15%; 8% in 15-20%; 12% in 20-30%; 32% in over 30%. Aspect N-NW.

**SOILS:** Loessial and residual; topsoil - medium textured, granular structure, moderately deep (6-12 in.) subsoil - moderately permeable; internal drainage - medium. Fayette silt loam - 22%; Dubuque silt loam - 8%; Hixton sandy loam - 19%; rough broken land - 22%; Meridian sandy loam - 2%; Waukesha silt loam - 10%; Arensville silt loam - 7%; Peat and alluvium - 3%; Sparta fine sand - 7%.

**EROSION:** 1 - 67%; 2 - 31%; 3 - 2%.

**LAND CAPABILITY:** I - 3%; II - 9%; III - 13%; IV - 18%; V - 8%; VI - 11%; VII - 38%.

**SURFACE DRAINAGE:** Good; principal waterway - 14.5 mi.; area well dissected, fairly wide flood plain with some wet spots on lower half of area.

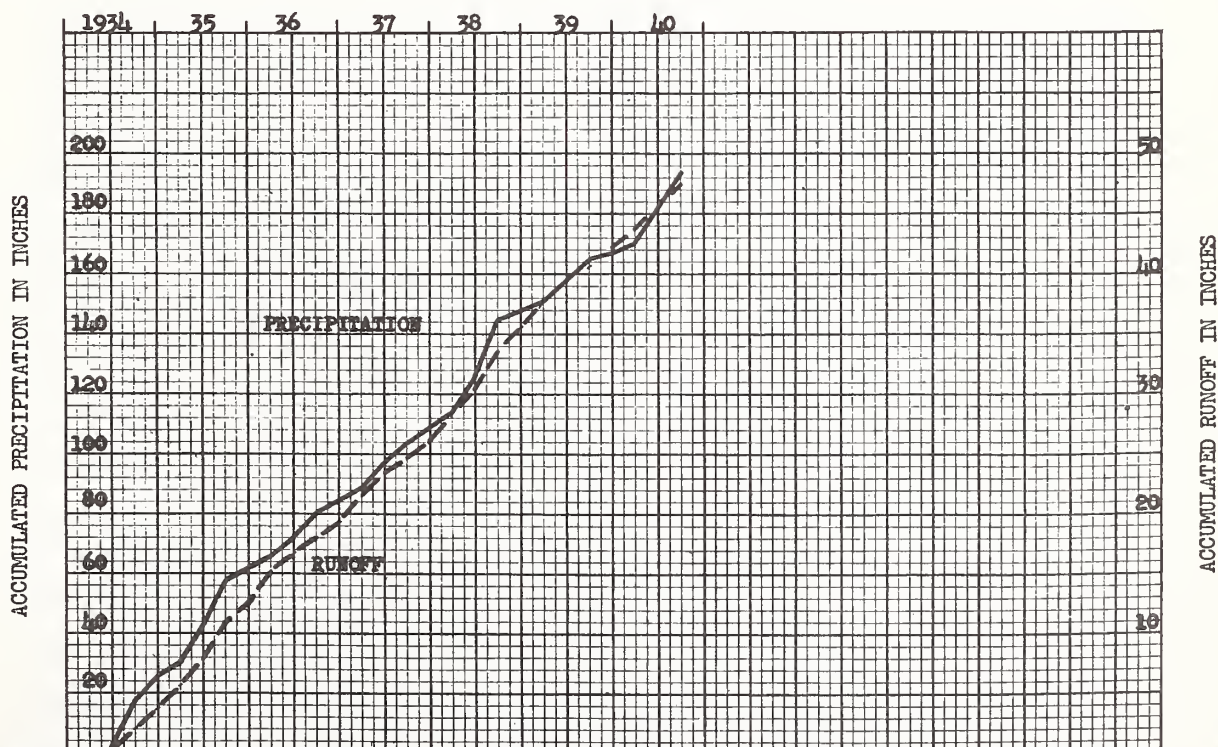
**CHARACTER OF FLOW:** Perennial, continuous.

**INSTRUMENTATION:** Runoff - natural control, continuous water stage recorder, rating established by current meter; precipitation - 2 recording and 2 standard gages.

**WATERSHED CONDITIONS:** General dairy farming area without extensive soil conservation practices. The common rotation on cultivated areas was 3 to 4 years with corn, grain and 1 or 2 years hay. Cropland - 42%; woodlands (mostly pastured) - 37%; permanent pasture - 19%; farmsteads and idle lands - 2%.

**GENERALLY REPRESENTS:** Mixed cover areas of the Upper Mississippi Loess Hills having medium internal drainage, good surface drainage and moderate erosion found in the unglaciated section of NW Illinois, NE Iowa, SE Minnesota, and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF





**MONTHLY PRECIPITATION AND RUNOFF (Inches) Coon Valley, Wis. Watershed No. 2\***

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P						**3.70	**5.50	1.67	6.17	2.15	6.20	1.05	26.44
Q						.41	.75	.33	.52	.47	.70	.54	3.72
1935 P	**1.80	0.58	1.59	3.98	4.70	3.69	4.18	8.23	2.42	2.23	1.67	.64	35.71
Q	.41	.39	1.22	.77	.95	.59	.72	1.90	.51	.55	.53	.49	9.03
1936 P	.62	**1.78	1.79	.52	2.84	2.42	.71	3.09	4.51	1.83	.88	1.24	22.23
Q	.44	.43	1.77	.62	.56	.46	.38	.37	.47	.45	.45	.46	6.86
1937 P	1.99	1.49	.59	2.44	2.96	3.32	.37	3.51	2.51	3.67	1.29	.37	24.51
Q	.43	.51	1.19	.81	.60	.54	.38	.40	.38	.51	.47	.42	6.64
1938 P	1.09	1.55	2.35	2.94	4.62	4.56	3.79	5.71	9.05	.63	2.55	.85	39.69
Q	.45	1.01	.92	.62	.75	.69	.71	.80	1.63	.58	.68	.54	9.38
1939 P	.90	1.36	.61	2.33	1.83	2.86	1.37	4.36	1.21	1.27	** .62	** .39	19.11
Q	.61	.50	1.27	.74	.51	.48	.40	.49	.40	.44	.45	.45	6.74
1940 P	.55	.61	1.39	3.41	3.12	5.81	1.88	9.09	** .10				25.96
Q	.40	.41	.69	.73	.52	.59	.41	1.07	.44				5.26
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*** Av. P	1.16	1.23	1.39	2.60	3.35	3.77	2.54	5.09	3.71	1.96	2.20	.76	29.76
*** Av. Q	.46	.54	1.18	.71	.65	.54	.54	.77	.62	.50	.55	.48	7.54
Normal P	1.24	1.18	1.85	2.95	3.93	4.50	3.62	3.36	3.90	2.31	1.95	1.30	32.09

**Notes:** \* Listed in U.S. Geological Survey, Water Supply Papers as Little LaCrosse River near Leon, Wis. \*\* Partially estimated. \*\*\* Includes part year amounts for 1934 and 1940. Normal P based on 65 yr. record (1891-1955) at Hillsboro, Wis. Months of Jan., Feb., Mar., Apr., and Dec. include snow and snow melt. Quality of records: P - good; Q - good.

LOCATION: Grant Co., Wis.; 1 mi. N. of Fennimore; Blue River, Wisconsin River Basin.

AREA: 330 ac.

SHAPE: Roughly rectangular, about 2800 ft. wide by 5400 ft. long.

SLOPES: 2% is in 0-2% class; 62% in 2-6%; 25% in 6-10%; 9% in 10-15%; 2% in 15-20%. Aspect E.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (5-12 in.); subsoil - moderately permeable; internal drainage - medium. Tama silt loam - 50%; Dubuque silt loam - 19%; Dodgeville silt loam - 23%; Judson silt loam - 8%.

EROSION: 2 - 50%; 3 - 42%; + - 8%.

LAND CAPABILITY: II - 45%; III - 32%; IV - 17%; VI - 6%.

SURFACE DRAINAGE: Good; principal waterway - 5800 ft; paved road, 3000 ft. long, N-S across W end; gravel road, 3700 ft. long, near E-W centerline of area; culverts have ample capacity; ponding above roads - negligible.

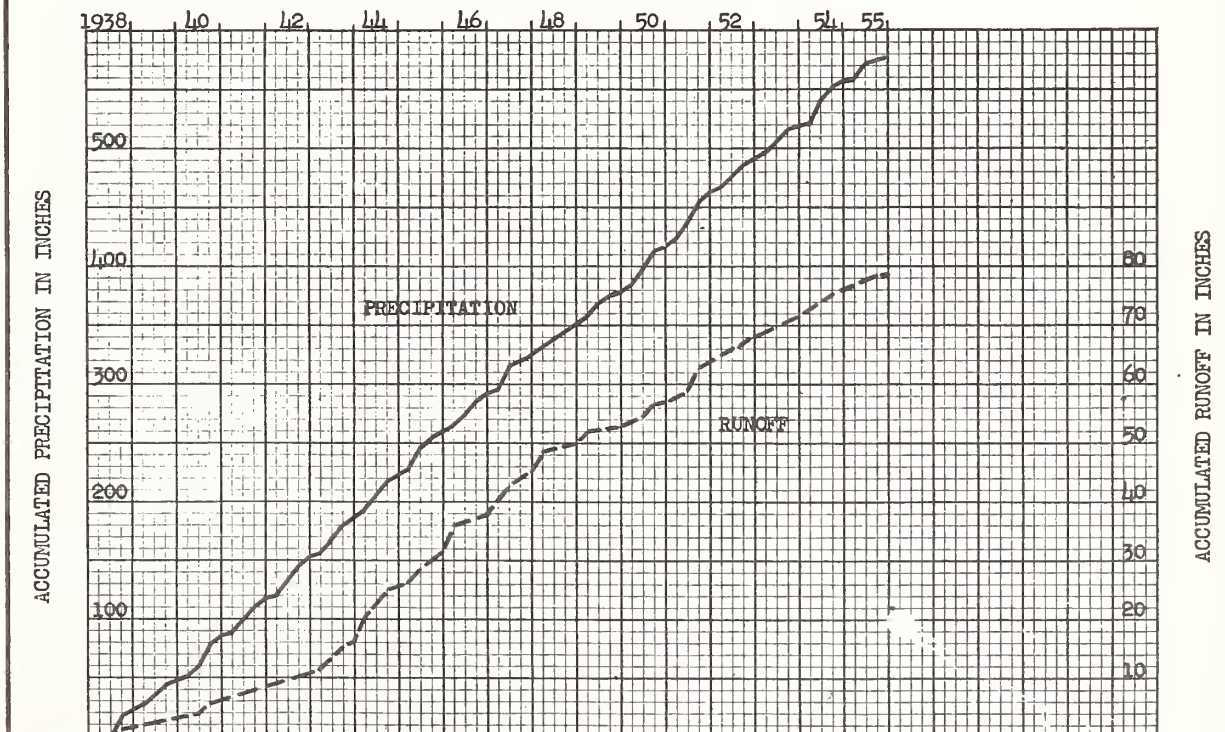
CHARACTER OF FLOW: Perennial, continuous.

INSTRUMENTATION: Runoff - 16" broadcrested concrete weir with 5:1 side slopes, continuous water-stage recorder; precipitation - 9 recording gages.

WATERSHED CONDITIONS: 1938-55 - 16% in permanent pasture; 5% roads and farmsteads; balance generally farmed as 3-yr. rotation of corn, oats, hay. Area in corn and oats has varied between 30 and 50%; 1938-50 - 12% strip cropped on contour, 4-yr. rotation of corn, oats, hay, hay. Crop yields good except 1939, '41, '45, '46, '47, '49, '55.

GENERALLY REPRESENTS: Cultivated uplands of the Upper Mississippi Loess Hills, having good surface and internal drainage and moderate erosion, in NW Illinois, NE Iowa, SE Minnesota, and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Fennimore, Wis., Watershed W-1**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P							3.22	4.66	10.40	1.31	2.84	0.89	23.32
Q							.07	.11	.76	.20	.21	.18	1.53
1939 P	1.17	1.00	0.74	2.60	3.47	4.51	3.39	2.58	1.30	2.47	1.15	.28	24.66
Q	.14*	.10*	.10*	.10*	.17	.16	.13	.11	.10	.11	.09	.08	1.39
1940 P	.58	1.26	.97	1.71	3.00	5.07	8.39	9.67	.29	2.50	2.84	.94	37.22
Q	.07*	.07*	.67*	.12	.11	.15	.93	.62	.16	.15	.10	.10*	3.25
1941 P	1.37	.31	1.50	2.50	5.18	3.18	2.65	.31	8.08	5.98	.61	1.13	32.80
Q	.10*	.18*	.34*	.17	.32	.20	.15	.13	.23	.25	.20	.15*	2.42
1942 P	.59	.45	1.06	1.88	4.66	5.42	3.87	1.99	8.02	2.31	2.98	1.17	34.40
Q	.13*	.12*	.14*	.15*	.17	.21	.17	.13	.41	.11	.07	.31*	2.12
1943 P	.69	.58	1.90	1.49	3.37	6.63	3.05	7.94	2.27	4.04	1.46	.97	34.39
Q	.06*	.18*	.35*	.30	.42	1.04	.35	1.10	.40	.56	.40	.26	5.42
1944 P	1.17	1.39	2.26	3.89	3.26	8.21	4.14	4.56	2.44	.88	2.53	1.01	35.74
Q	.37*	1.90*	2.02*	.50	.44	1.37	.94	.59	.48	.43	.36	.12*	9.52
1945 P	.46	1.63	2.50	4.86	5.74	7.30	2.10	3.93	3.97	.14	4.39	.98	38.00
Q	.10*	.10*	.33	.36	.41	1.54	.60	.56	.51	.40	.60	.34	5.85
1946 P	2.26	.30	2.62	.97	1.81	4.50	1.35	3.64	6.72	2.89	2.36	1.73	31.15
Q	1.59*	.68*	2.20*	.35	.28	.21	.18	.21	.24	.18	.18	.50	6.80
1947 P	1.57	.11	1.41	5.02	4.41	10.98	2.39	1.25	2.88	2.55	1.27	1.36	35.20
Q	.67*	.73*	.71*	.40	.32	1.40	.51	.45	.44	.46	.35	.31	6.75
1948 P	.20	2.29	2.13	3.04	2.84	1.46	2.18	2.64	2.74	1.55	2.82	1.37	25.26
Q	.24	1.94*	1.38*	.18	.19	.16	.14	.12	.13	.19	.15	.08	4.90
1949 P	2.17	.64	2.39	1.86	2.30	8.85	2.11	2.41	1.15	1.47	.56	1.45	27.36
Q	1.32*	.03	.65	.04	.04	.55	.04	.02	.01	.04	.03	.05	2.82
1950 P	1.73	1.13	1.32	3.19	5.28	4.93	11.95	1.32	3.57	.42	.69	1.56	37.09
Q	.10*	0	1.00*	0	.28	.03	2.86	.06	.07	0	.01	0	4.41
1951 P	.91	1.79	3.85	5.73	3.75	4.81	4.48	11.57	1.88	4.43	2.37	.85	46.42
Q	0	.07	.53*	.27	.51	.48	.59	2.63	.62	.61	.22	.25	6.78
1952 P	1.20	.41	2.51	1.29	4.21	3.54	5.73	3.58	.84	0	3.40	1.79	28.50
Q	.51*	.39*	.58*	.57	.46	.40	.40	.34	.24	.22	.22	.23	4.56
1953 P	.77	1.92	2.70	2.91	1.67	4.04	4.68	3.49	1.39	.59	1.40	1.69	27.25
Q	.22*	1.18*	.57*	.22	.21	.19	.18	.23	.14	.15	.15	.19	3.63
1954 P	.19	.67	1.20	6.69	4.06	10.09	3.50	2.02	3.42	4.39	.55	.89	37.67
Q	.15*	.30*	.09	.19	.11	1.37	.59	.31	.24	.47	.20	.15	4.17
1955 P	.58	1.20	1.05	4.15	3.24	4.31	2.42	.30	1.40	2.42	.42	1.05	22.54
Q	.15*	.30*	.50*	.25	.25	.22	.19	.16	.14	.15	.12	.10	2.53
P													
Q													
P													
Q													
Av. P	1.03	1.00	1.89	3.17	3.66	5.76	4.02	3.72	3.08	2.30	1.86	1.19	32.68
Av. Q	.35	.49	.72	.25	.28	.57	.53	.46	.27	.26	.20	.19	4.57
Normal P	1.13	1.12	2.08	2.96	4.00	4.63	3.79	3.45	3.95	2.32	1.97	1.30	32.70

**Notes:** \*Partially estimated. \*\*Does not include part year amounts for 1938. Normal P based on 60 yr. record (1895-1954) at Lancaster, Wis. Months of January, February, March and December include snow and snow melt. Quality of records: P - excellent; Q - excellent, except for periods of melting snow.



LOCATION: Grant Co., Wis.; 1 mi. N. of Fennimore; Blue River, Wisconsin River Basin.

AREA: 22.8 ac.

SHAPE: Fan; 1000 ft. radius from gaging station.

SLOPES: 52% is in 2-6% class; 48% in 6-10%. Aspect S.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (5-12 in.); subsoil - moderately permeable; internal drainage - medium; Tama silt loam - 73%; Dodgeville silt loam - 25%; Judson silt loam - 2%.

EROSION: 2 - 66%; 3 - 32%; + - 2%.

LAND CAPABILITY: II - 65%; III - 35%.

SURFACE DRAINAGE: Good; principal waterway 1050 ft; ponding area at spillway elevation - 1000 sq. ft.

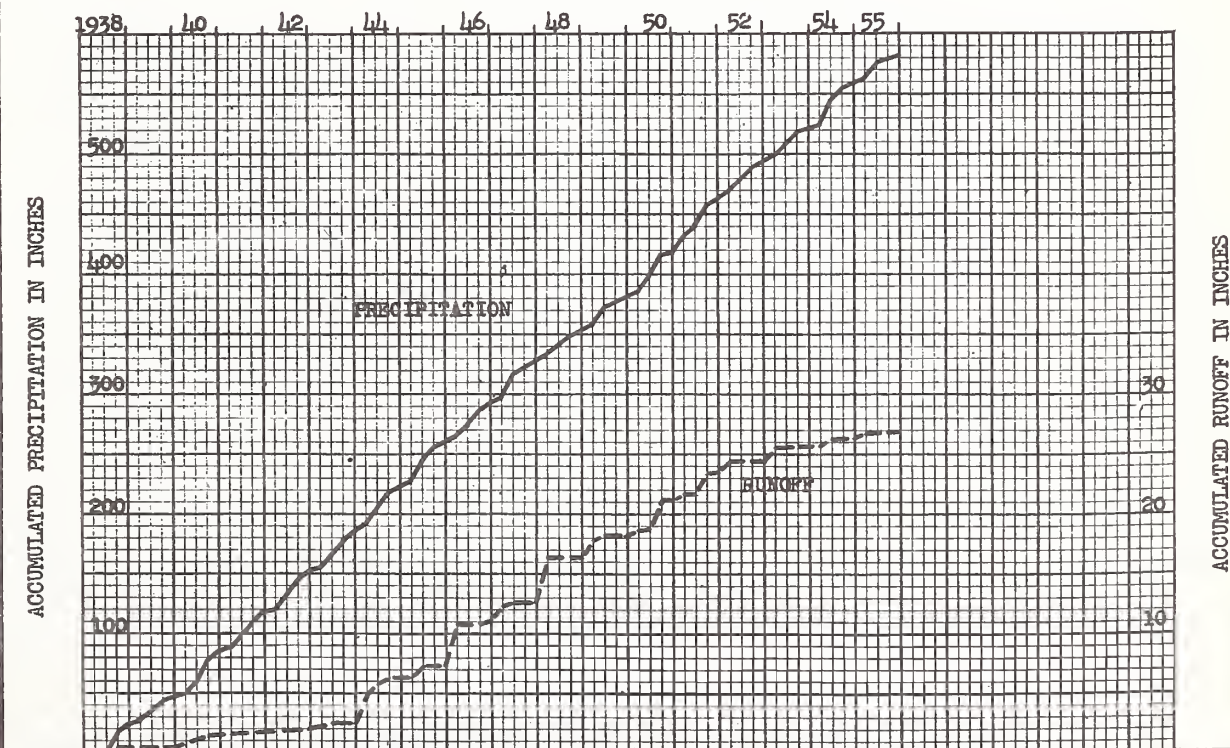
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16" broadcrested concrete weir with 3:1 side slopes, continuous water-stage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1938-43 and 1946 - generally 4-yr. rotation with average of 40% in corn and oats, 60% hay and pasture; 1944-45 - 60% corn and oats; 1947-52 - from 90 to 100% hay or lightly pastured; 1953-55 - half in corn on same fields all three years. Crop yields good except 1939, '41, '45, '46, '47, '49, '55.

GENERALLY REPRESENTS: Cultivated uplands of the Upper Mississippi Loess Hills, having good surface and internal drainage and moderate erosion; in NW Illinois, NE Iowa, SE Minnesota, and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Pennimore, Wis., Watershed W-2**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q							3.31 T	4.68 0	10.41 .28	1.23 0	2.98 0	0.89 0	23.50 .28
1939 P Q	1.17 .05	1.00 0	.74 0	2.53 0	3.30 0	4.32 0	3.41 0	2.44 0	1.27 0	2.37 0	1.07 0	.28 0	23.90 .05
1940 P Q	.58 0	1.25 0	.97 .32*	1.66 0	3.25 0	5.01 T	8.42 .44	9.85 .33	.31 0	2.59 0	2.90 0	.94 0	37.73 1.09
1941 P Q	1.37 0	.31 .07	1.50 .23	2.58 0	5.07 .04	3.29 0	2.62 0	.29 0	8.18 0	6.12 0	.72 0	1.13 0	33.18 .34
1942 P Q	.59 0	.45 0	1.06 0	1.92 0	4.42 0	5.23 0	3.81 0	1.87 0	7.76 .15	2.23 0	2.97 0	1.17 0	33.48 .15
1943 P Q	.69 0	.58 .05*	1.90 .25	1.46 0	3.36 0	6.48 .18	2.91 0	8.04 .17	2.16 0	4.23 .01	1.55 0	.97 0	34.33 .66
1944 P Q	1.17 .16	1.39 1.07	2.26 1.00*	3.89 0	3.48 0	8.59 1.06	4.15 .46	4.62 0	2.49 0	.94 0	2.46 0	1.01 0	36.45 3.75
1945 P Q	.46 0	1.63 0	2.50 0	4.86 0	5.91 0	7.52 1.05	2.15 0	3.90 0	4.22 0	.14 0	4.25 0	.98 0	38.52 1.05
1946 P Q	2.26 1.35*	.30 .26*	2.62 1.97*	.97 0	1.81 0	4.59 0	1.50 0	3.80 0	6.99 0	2.89 0	2.42 0	1.73 .12	31.88 3.70
1947 P Q	1.61 .28	.11 .54	1.42 .45	4.98 0	4.52 0	11.17 .39	2.53 0	1.25 0	2.86 0	2.42 0	1.28 0	1.28 0	35.43 1.66
1948 P Q	.20 0	2.17 2.51	2.16 1.06	2.96 0	2.99 0	1.60 0	2.11 0	2.52 0	2.79 0	1.61 0	2.80 0	1.36 0	25.27 3.57
1949 P Q	2.18 1.14*	.67 0	2.36 .41*	1.95 0	2.32 0	8.85 .22	2.19 0	2.39 0	1.08 0	1.43 0	.61 0	1.56 .01	27.59 1.78
1950 P Q	1.84 .07*	1.24 0	1.30 .55*	3.21 .01	5.35 .13	5.09 0	12.23 2.27	1.30 0	3.76 0	.39 0	.71 0	1.35 0	37.77 3.03
1951 P Q	.90 0	1.72 .16*	3.76 .33	5.74 0	3.94 0	4.76 T	4.41 .02	11.56 1.78	1.84 0	4.45 0	2.35 0	.83 0	46.26 2.29
1952 P Q	1.04 .40*	.24 .10*	2.18 .45*	1.32 0	4.26 0	3.62 0	5.77 0	3.66 0	.87 0	0 0	3.33 0	1.89 0	28.18 .95
1953 P Q	.78 0	1.92 .81*	2.73 .41	3.04 0	1.58 0	4.12 0	4.80 0	3.50 .03	1.50 0	.51 0	1.43 0	1.64 0	27.55 1.25
1954 P Q	.17 0	.66 0	1.19 0	6.71 .05*	4.17 0	10.66 .55	3.82 .05	2.23 0	3.57 0	4.59 .12	.57 0	.84 0	39.18 .77
1955 P Q  P Q	.58 0  0	1.07 .30*  0	1.02 .17*  0	4.03 0	3.30 0	4.39 0	2.50 0	.30 0	1.50 0	2.49 0	.44 0	.94 .03	22.56 .50
** Av. P ** Av. G	1.03 .20	.98 .34	1.86 .45	3.17 T	3.71 .01	5.84 .20	4.08 .19	3.74 .14	3.13 .01	2.32 .01	1.87 0	1.17 .01	32.90 1.56
Normal P	1.13	1.12	2.08	2.96	4.00	4.63	3.79	3.45	3.95	2.32	1.97	1.30	32.70

**Notes:** \*Partially estimated. \*\*Does not include part year amounts for 1938. Normal P based on 60 yr. record (1895-1954) at Lancaster, Wis. Months of January, February, March and December include snow and snow melt. Quality of records: P - excellent; Q - excellent, except for periods of melting snow.



LOCATION: Grant Co.; Wis., 1 mi. N. of Fennimore; Blue River, Wisconsin River Basin.

AREA: 52.5 ac.

SHAPE: Roughly rectangular, about 1050 ft. wide by 2100 ft. long.

SLOPES: 60% is in 2-6% class; 24% in 6-10%; 16% in 10-15%. Aspect S.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (5-12 in.); subsoil - moderately permeable; internal drainage - medium. Tama silt loam - 34%; Dubuque silt loam - 61%; Judson silt loam - 5%.

EROSION: 2 - 46%; 3 - 49%; + - 5%.

LAND CAPABILITY: II - 39%; III - 34%; IV - 27%.

SURFACE DRAINAGE: Good; principal waterway - 2200 ft.; gravel road 1000 ft. long, E and W across lower part of area; culvert has ample capacity for peak flows; no ponding above road.

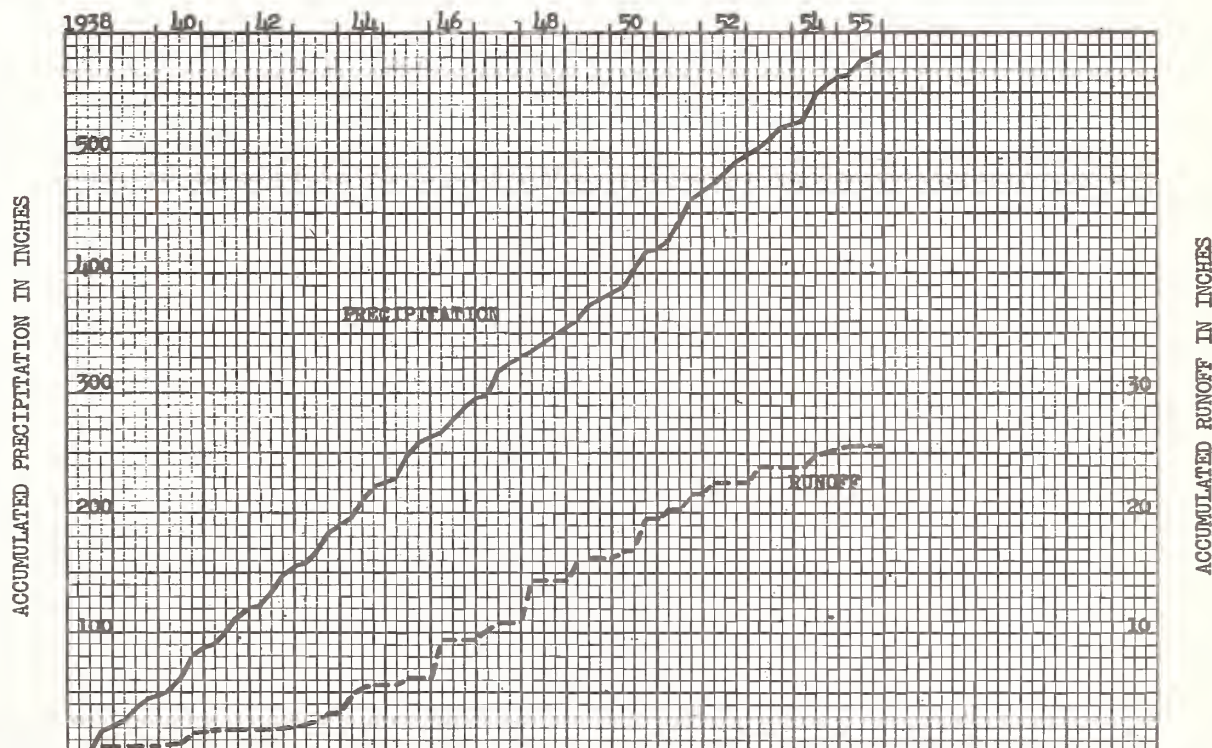
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broadcrested concrete weir with 3:1 side slopes, continuous water-stage recorder; precipitation - 2 recording gages.

WATERSHED CONDITIONS: 1938-55 - 23% in permanent pasture, 7% - roads and farmsteads, balance generally 3-4 yr. rotations with corn, oats and one or more years of meadow. Less than 25% in corn and oats in 1942, '43, '47, '48 and '52. More than 40% corn and oats in 1939, '41, '45, '53, '54, '55. Crop yields good except 1939, '41, '45, '46, '47, '49 and '55.

GENERALLY REPRESENTS: Cultivated uplands of the Upper Mississippi Loess Hills, having good surface and internal drainage and moderate erosion, in NW Illinois, NE Iowa, SE Minnesota, and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) *Fennimore, Wis., Watershed W-3***

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P							3.31	4.64	10.60	1.31	2.96	0.89	23.71
	Q							0	0	.36	0	0	0	.36
1939	P	1.17	1.00	0.74	2.61	3.56	4.63	3.46	2.73	1.34	2.48	1.15	.28	25.15
	Q	.06	T	T	0	0	0	0	0	0	0	0	0	.06
1940	P	.58	1.26	.97	1.67	3.17	5.17	8.40	9.87	.36	2.68	3.02	.94	38.09
	Q	0	0	.30*	0	0	.01	.53	.26	0	0	0	0	1.10
1941	P	1.37	.31	1.50	2.52	5.12	3.28	2.57	.30	8.30	6.04	.59	1.13	33.03
	Q	0	.07*	.22*	0	.07	0	0	0	.01	.03	0	0	.40
1942	P	.59	.45	1.06	1.93	4.62	5.24	3.91	1.94	8.24	2.30	3.00	1.17	34.45
	Q	0	0	0	0	0	0	0	0	.08	0	0	0	.08
1943	P	.69	.58	1.90	1.49	3.47	6.62	3.10	8.12	2.36	4.15	1.54	.97	34.99
	Q	0	.05*	.15*	0	0	.33	T	.48	0	.09	0	0	1.10
1944	P	1.17	1.39	2.26	3.89	3.38	8.46	4.23	4.56	2.45	.87	2.51	1.01	36.18
	Q	.13	.38	1.01*	.04	0	.68	.15	0	0	0	0	0	2.39
1945	P	.46	1.63	2.50	4.86	5.78	7.33	2.03	3.85	4.08	.14	4.35	.98	37.99
	Q	0	0	0	T	T	.58	0	0	0	0	0	0	.58
1946	P	2.26	.30	2.62	.97	1.65	4.74	1.40	3.71	6.75	2.89	2.41	1.73	31.43
	Q	1.25*	.36	1.62*	0	0	0	0	0	0	0	0	.11	3.34
1947	P	1.61	.11	1.42	4.98	4.51	11.05	2.47	1.24	2.91	2.44	1.25	1.28	35.27
	Q	.20	.18	.41	.04	0	.68	0	0	0	0	0	0	1.51
1948	P	.20	2.17	2.16	2.96	3.03	1.50	2.02	2.71	3.10	1.59	2.82	1.36	25.62
	Q	0	2.41	.98	0	0	0	0	0	0	0	0	0	3.39
1949	P	2.18	.67	2.36	1.95	2.32	8.78	2.10	2.28	1.10	1.50	.61	1.56	27.41
	Q	1.22*	0	.45*	0	0	.22	0	0	0	0	0	T	1.89
1950	P	1.84	1.24	1.30	3.21	5.09	4.99	12.49	1.39	3.58	.38	.69	1.57	37.77
	Q	.07*	0	.55*	0	.15	0	2.54	0	0	0	0	0	3.31
1951	P	.89	1.80	4.09	5.86	3.83	4.69	4.32	11.49	1.85	4.59	2.37	.99	46.77
	Q	0	.20*	.32	0	0	.02	.04	1.45	T	T	T	.01	2.84
1952	P	1.30	.64	2.94	1.42	4.35	3.63	5.85	3.39	.87	0	3.47	1.70	29.56
	Q	.35*	.10*	.40*	0	0	0	.05	T	0	0	0	0	.90
1953	P	.78	1.96	2.75	2.92	1.77	4.02	4.68	3.52	1.38	.63	1.45	1.76	27.62
	Q	.18*	.90*	.38*	0	0	0	0	.06	0	0	0	0	1.52
1954	P	.25	.68	1.21	6.58	4.15	10.31	3.25	2.05	3.35	4.52	.54	.78	37.67
	Q	0	0	0	.04	0	.92	.06	0	0	.12	0	0	1.14
1955	P	.50	1.16	1.04	4.28	3.37	4.41	2.29	.29	1.29	2.44	.42	1.09	22.58
	Q	0	.25*	.23*	0	0	0	0	0	0	0	0	0	.48
	P													
	Q													
	P													
	Q													
Av. P		1.05	1.02	1.93	3.18	3.72	5.81	4.03	3.74	3.14	2.33	1.89	1.19	33.03
Av. Q		.20	.29	.41	.01	.01	.20	.20	.13	.01	.01	0.	.01	1.48
Normal P		1.13	1.12	2.08	2.96	4.00	4.63	3.79	3.45	3.95	2.32	1.97	1.30	32.70

**Notes:** \*Partially estimated. \*\*Does not include part year amounts for 1938. Normal P based on 60 yr. record (1895-1954) at Lancaster, Wis. Months of January, February, March and December include snow and snow melt. Quality of records: P - excellent; Q - excellent, except for periods of melting snow.

LOCATION: Grant Co., Wis.; 1 mi. N of Fennimore; Blue River, Wisconsin River Basin.

AREA: 171 ac.

SHAPE: Roughly circular, diameter about 3200 ft.

SLOPES: 3% is in 0-2% class; 74% in 2-6%; 20% in 6-10%; 3% in 10-15%. Aspect E.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (5-12 in.); subsoil - moderately permeable; internal drainage - medium. Tama silt loam - 70%; Dodgeville silt loam - 24%; Judson silt loam - 6%.

EROSION: 2 - 68%; 3 - 26%; 4 - 6%.

LAND CAPABILITY: II - 62%; III - 28%; IV - 7%; VI - 3%.

SURFACE DRAINAGE: Good; principal waterway - 3300 ft; paved road, 3000 ft. long, N-S across E-half; two culverts under road have ample capacity; ponding above road - negligible.

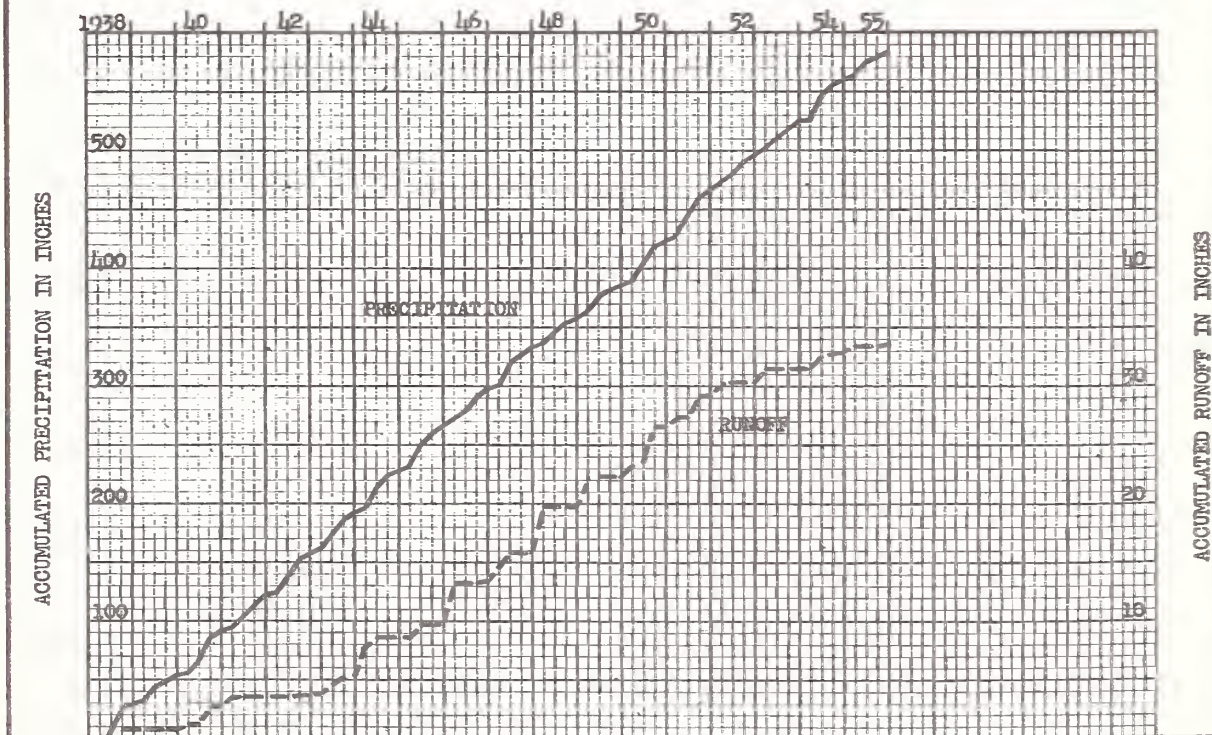
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broadcrested concrete weir with 5:1 side slopes, continuous water-stage recorder; precipitation - 4 recording gages.

WATERSHED CONDITIONS: 1938-55 - 13% in permanent pasture; 6% roads and farmsteads; rest of area generally farmed as 3-yr. rotation of corn, oats, hay. 45% in corn or oats in 1941, '42, '43, '47, '50, '51; about 60% in corn and oats in 1939, '44, '45, '46, '53, '55. Crop yields good except 1939, '45, '46, '47, '49 and '55.

GENERALLY REPRESENTS: Cultivated uplands of the Upper Mississippi Loess Hills, having good surface and internal drainage and moderate erosion, in NW Illinois, NE Iowa, SE Minnesota, and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Fennimore, Wis., Watershed W-4**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q						6.13 .06	3.20 .01	4.85 .05	10.41 .52	1.34 0	2.83 T	0.89 0	29.65 .64
1939 P Q	1.17 .01	1.00 T	0.74 .01	2.58 0	3.45 0	4.35 .01	3.34 0	2.46 0	1.30 0	2.46 0	1.14 0	.28 0	24.27 .03
1940 P Q	.58 0	1.26 0	.97 .42*	1.60 0	2.98 0	4.92 .05	8.40 .99	9.67 .51	.26 0	2.42 0	2.80 0	.94 0	36.80 1.97
1941 P Q	1.37 0	.31 .10*	1.50 .55*	2.47 0	5.24 .13	3.14 0	2.71 0	.33 0	7.86 T	6.06 .01	.63 0	1.13 0	32.75 .79
1942 P Q	.59 0	.45 0	1.06 0	1.85 0	4.62 0	5.61 T	3.82 T	2.06 .01	7.93 .11	2.33 0	3.00 0	1.17 0	34.49 .12
1943 P Q	.69 0	.58 .05*	1.90 .20*	1.45 T	3.27 T	6.44 .59	3.01 .01	7.82 .62	2.28 T	3.95 .11	1.51 0	.97 0	33.87 1.58
1944 P Q	1.17 .25	1.39 .94*	2.26 1.35*	3.89 .10	3.17 0	8.17 .68	4.07 .20	4.61 T	2.44 0	.89 0	2.49 0	1.01 0	35.56 3.52
1945 P Q	.46 0	1.63 0	2.50 0	4.86 T	5.71 .01	7.28 .96	2.20 .09	3.94 .03	3.93 T	.14 0	4.40 .03	.98 0	38.03 1.12
1946 P Q	2.26 1.30*	.30 .35*	2.62 1.83	.97 0	1.98 0	4.86 0	1.22 0	3.67 0	6.73 0	2.92 0	2.29 0	1.73 .20	31.55 3.68
1947 P Q	1.56 .40	.12 .54	1.40 .50	5.02 .03	4.38 0	10.94 .99	2.36 0	1.30 0	2.91 0	2.61 0	1.29 0	1.36 0	35.25 2.46
1948 P Q	.20 0	2.39 2.86	2.12 1.09	3.12 0	2.60 0	1.43 0	2.42 0	2.69 0	2.51 0	1.55 0	2.86 0	1.39 0	25.28 3.95
1949 P Q	2.18 .97	.63 0	2.41 .84*	1.82 0	2.28 0	8.83 .49	2.13 0	2.52 0	1.16 0	1.47 0	.53 0	1.41 .03	27.37 2.33
1950 P Q	1.65 .10*	1.06 0	1.35 .80*	3.17 0	5.36 .46	4.80 T	11.84 2.99	1.33 0	3.57 .05	.42 0	.66 0	1.78 0	36.99 4.40
1951 P Q	.92 0	1.83 .21*	3.69 .37*	5.57 .01	3.68 0	4.78 T	4.45 .19	11.55 1.73	1.86 T	4.37 T	2.39 .01	.72 0	45.81 2.52
1952 P Q	1.23 .50*	.32 .10*	2.47 .40*	1.11 0	4.14 0	3.56 0	5.56 T	3.63 0	.82 0	0 0	3.40 0	1.78 0	28.02 1.00
1953 P Q	.75 .02	1.87 .85*	2.62 .35	2.87 0	1.62 0	4.02 0	4.72 0	3.46 .01	1.32 0	.49 0	1.33 0	1.63 0	26.70 1.23
1954 P Q	.17 0	.65 0	1.19 0	6.72 .08	4.04 0	9.97 1.11	3.63 .13	2.02 0	3.39 0	4.38 .22	.57 0	.78 0	37.51 1.54
1955 P Q P Q	.63 0	1.27 .20	1.08 .36	4.11 0	3.08 0	4.17 0	2.50 0	.31 0	1.40 0	2.40 0	.40 0	1.08 .04*	22.43 .60
Av. P Av. Q	1.03 .21	1.00 .36	1.88 .53	3.13 .01	3.62 .04	5.72 .29	4.02 .27	3.73 .17	3.04 .01	2.29 .02	1.86 T	1.18 .02	32.50 1.93
Normal P	1.13	1.12	2.08	2.96	4.00	4.63	3.79	3.45	3.95	2.32	1.97	1.30	32.70

**Notes:** \*Partially estimated. \*\*Does not include part year amounts for 1938. Normal P based on 60 yr. record (1895-1954) at Lancaster, Wis. Months of January, February, March and December include snow and snow melt. Quality of records: P - excellent; Q - excellent, except for periods of melting snow.



LOCATION: La Crosse Co., Wis.; 3 mi. E. of La Crosse; La Crosse River, Mississippi River Basin.

AREA: 2.71 - 2.41 ac.

SHAPE: Roughly rectangular, about 300 ft. wide by 360 ft. long.

SLOPES: 28% is in 15-20% class; 72% in 20-30%. Aspect S-SE.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (6-10 in.); subsoil - moderately permeable; internal drainage - medium. Dubuque silt loam - 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: IV - 28%; VI - 72%.

SURFACE DRAINAGE: Good; principal waterway 220 ft.; overland flow to S boundary where it is diverted by earth dikes to measuring station.

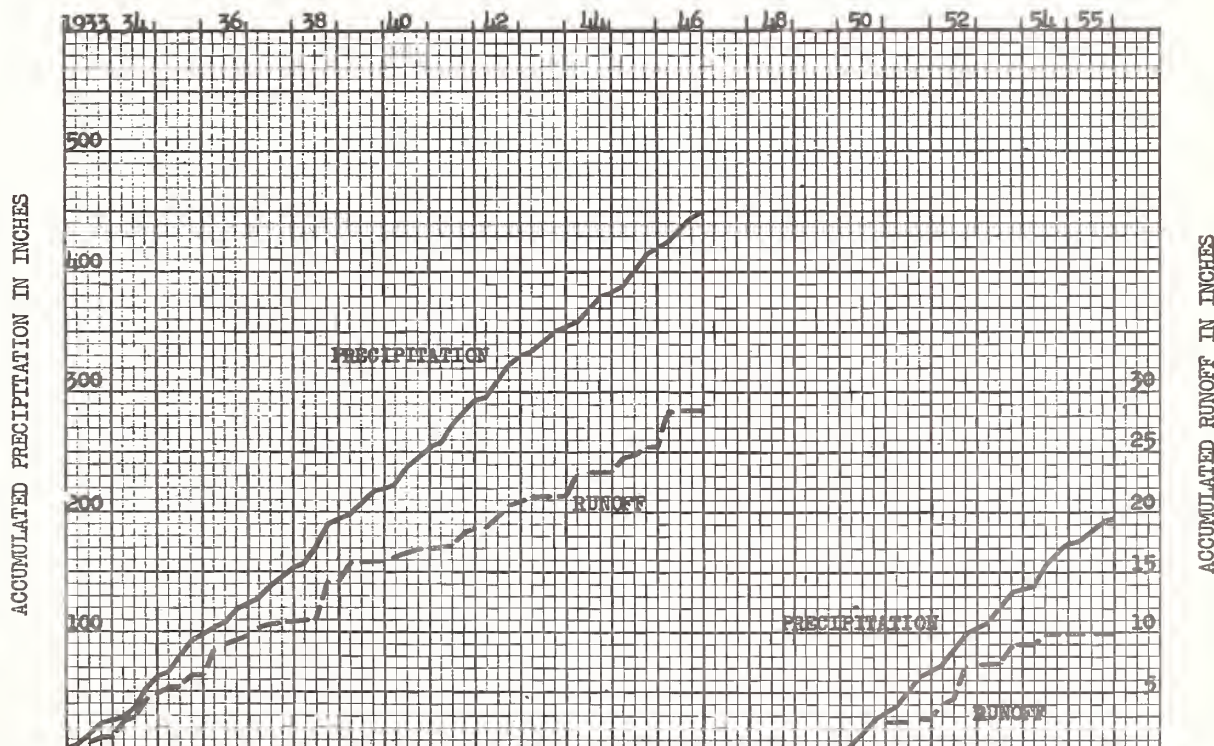
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. Parshall flume 1933-42, trapezoidal flume 1943-55, continuous water stage recorder; precipitation - standard gage 1937-41, recording gage 1933-36 and 1942-55.

WATERSHED CONDITIONS: Prior to 1933 - upper two-fifths part of cultivated field, lower three-fifths in pasture for a number of years; 1934-35 - dense stand periodically cut for hay; 1936-48 - bluegrass pasture moderately grazed; Aug. 1949 - renovated; 1950 - seeded to oats-legume grass; 1951-55 - alfalfa-brome pasture. Area: 2.71 ac. in 1933-34; 2.41 ac. in 1935-55. Not under measurement 1947-49.

GENERALLY REPRESENTS: Steep, permanent pasture areas of the Upper Mississippi Loess Hills, having medium internal drainage, good surface drainage and moderate to severe erosion in NW Illinois, NE Iowa, SE Minnesota and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) La Crosse, Wis., Watershed UPW**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1933 P Q	1.45 * .60	0.51 0	2.28 .06	2.31 0	4.72 T	2.06 0	5.75 .33	1.08 0	4.88 .04	1.72 .03	0.06 0	0.33 0	27.15 1.06
1934 P Q	.70 *1.50	.06 0	1.42 0	.97 .06	.97 0	3.98 .27	6.35 1.27	1.81 0	8.57 .25	2.78 .32	6.33 .01	1.01 0	34.95 3.68
1935 P Q	2.05 * .10	.50 * .02	1.45 * .27	2.75 T	4.26 0	5.42 0	3.43 .07	7.72 1.18	2.64 .01	3.82 * .02	1.45 0	.56 0	36.05 1.67
1936 P Q	.77 0	1.34 * .10	1.76 2.07	1.92 0	3.47 .21	2.07 .01	.76 0	3.61 .22	4.91 .19	3.01 .34	.66 0	1.02 0	25.30 3.14
1937 P Q	2.08 0	1.43 * .23	.40 * .37	2.87 .01	3.24 0	4.42 .48	.74 0	4.41 .13	2.20 0	3.61 0	2.52 .04	.47 0	28.39 1.26
1938 P Q	1.19 .02	1.02 * .16	2.55 T	3.65 .01	4.63 0	4.42 0	7.26 1.22	6.02 .99	7.95 .92	1.48 0	2.43 0	.67 0	43.27 3.32
1939 P Q	.95 0	1.67 .06	.55 1.58	2.25 0	2.14 0	2.38 0	1.79 0	8.81 .15	.97 0	1.85 0	.22 0	.75 0	24.33 1.79
1940 P Q	.54 0	.82 0	1.75 * .20	3.73 .11	3.78 0	5.80 .15	2.14 0	7.27 .43	.36 0	2.95 0	2.94 0	1.34 * .05	33.42 .94
1941 P Q	1.27 0	.58 * .05	1.70 * .17	2.98 .02	6.07 .04	5.32 .03	2.41 .17	1.09 0	8.61 .76	4.94 .50	1.48 0	1.63 0	38.08 1.74
1942 P Q	.23 0	.70 0	2.43 0	1.39 0	5.67 T	7.25 1.01	3.83 T	3.57 .30	6.63 .60	3.03 .23	2.86 0	1.66 0	39.51 2.14
1943 P Q	1.57 0	.32 0	1.26 * .50	.98 0	3.22 .01	3.56 T	3.51 T	3.39 0	1.75 T	2.35 0	1.17 0	T 0	23.08 .51
1944 P Q	.96 0	1.61 * .93	2.42 * .95	2.91 * .15	3.01 .01	4.53 .09	3.72 0	4.89 .02	2.46 0	.33 0	1.01 0	.82 0	28.67 2.15
1945 P Q	.46 0	2.12 * .25	3.46 * .85	3.22 0	7.73 .38	2.42 T	5.58 .42	2.50 .01	3.89 .02	.15 0	3.22 T	1.68 0	36.43 1.93
1946 P Q	2.44 *1.65	.56 * .65	2.23 * .80	.49 0	2.70 0	5.22 T	1.48 0	3.37 0	7.56 .02	3.03 0	1.78 0	.76 0	31.62 3.12
1950 P Q	1.37 * .10	.78 T	1.60 * .25	3.83 0	4.45 .43	5.20 1.30	6.09 .21	2.73 .02	1.70 .01	1.10 0	.46 0	1.58 0	30.89 2.32
1951 P Q	.95 0	1.45 0	3.77 0	4.75 0	3.42 0	4.85 .01	5.56 .45	4.21 0	2.80 0	3.87 0	1.71 0	.77 0	38.11 .46
1952 P Q	1.68 * .25	.61 * .10	2.24 * .75	1.03 0	3.29 0	6.71 .56	9.29 2.68	5.10 .16	.90 0	T 0	2.30 0	1.12 0	34.27 4.50
1953 P Q	.96 0	2.06 0	1.56 * .10	4.94 0	2.17 T	4.35 0	11.18 1.34	2.06 .20	.43 0	.40 0	1.53 0	1.24 0	32.88 1.64
1954 P Q	.58 0	.42 0	1.17 0	8.00 .68	1.84 0	7.04 .10	3.51 .18	2.60 0	4.63 0	4.81 0	1.09 0	.49 0	36.18 .96
1955 P Q	.38 0	.52 0	1.14 0	3.06 0	4.08 0	2.95 T	4.14 .05	.75 0	1.62 0	1.60 0	.88 0	.67 0	21.79 .05
Av. P Av. Q	1.13 .21	.95 .13	1.87 .45	2.90 .05	3.74 .05	4.50 .20	4.43 .42	3.85 .19	3.77 .14	2.34 .07	1.80 T	.93 T	32.21 1.91
Normal P	1.24	1.18	1.85	2.95	3.93	4.50	3.62	3.36	3.90	2.31	1.95	1.30	32.09

**Notes:** \* Partially estimated. Normal P based on 65 yr. record (1891-1955) at Hillsboro, Wis.  
Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records: P - good;  
Q - Jan., Feb., Mar., fair - Apr. to Dec., good.



LOCATION: La Crosse Co., Wis.; 3 mi. E. of La Crosse; La Crosse River, Mississippi River Basin.

AREA: 4.13 - 2.33 - 2.24 ac.

SHAPE: Roughly rectangular, about 275 ft. wide by 350 ft. long.

SLOPES: 28% is in 6-10% class; 35% in 10-15%; 24% in 15-20%; 13% in 20-30%. Aspect SW.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (6-10 in.); subsoil - moderately permeable; internal drainage - medium. Fayette silt loam - 63%; Dubuque silt loam - 37%.

EROSION: 2 - 70%; 3 - 30%.

LAND CAPABILITY: III - 28%; IV - 35%; VI - 24%; VII - 13%.

SURFACE DRAINAGE: Good; principal waterway - 200 ft.; overland flow to the S boundary where it is diverted by earth dike to measuring station.

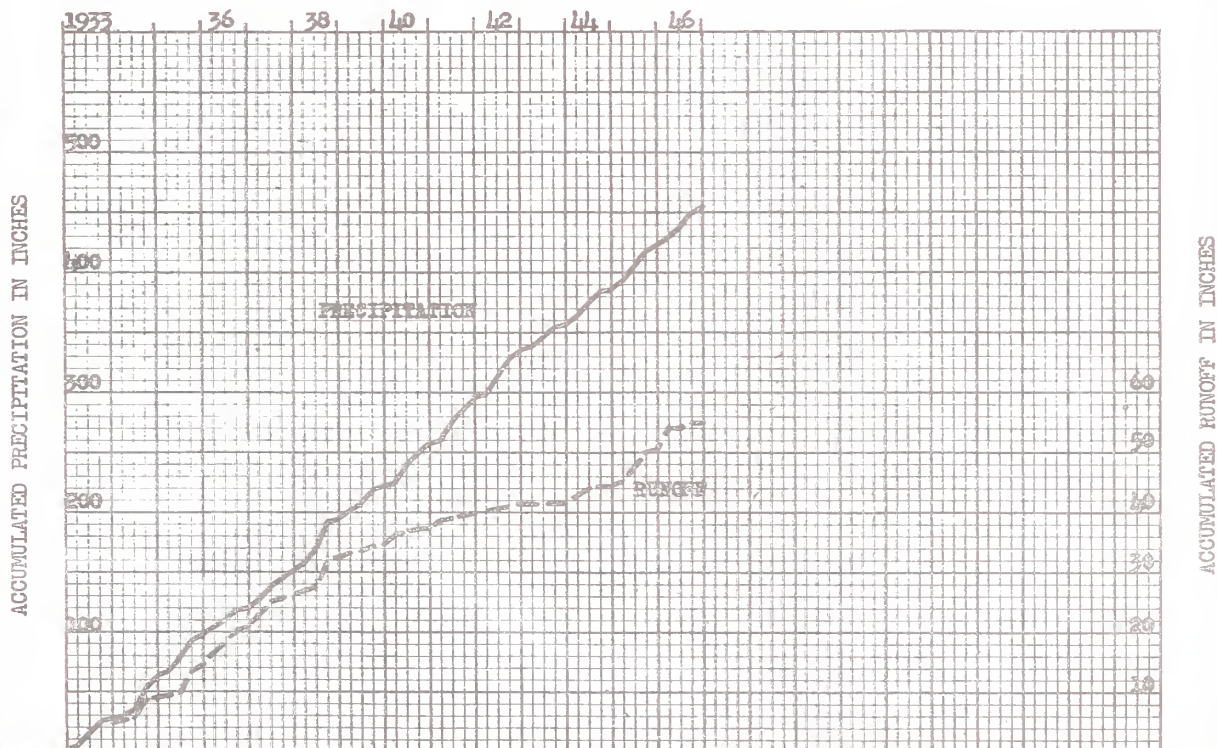
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. Parshall flume 1933-42, trapezoidal flume 1943-46, continuous water stage recorder; precipitation - standard gage 1937-41, recording gage 1933-36 and 1942-46.

WATERSHED CONDITIONS: Prior to 1932 - upper two-thirds under cultivation for a number of years, lower one-third hay; 1933-37 - farmed on contour in 3 yr. rotation of corn, grain, hay. By end of 1937 lower third severely gullied, was seeded to grass in 1938 and remained in hay for rest of period of record; 1938-46 - upper two-thirds in 6 yr. rotation of corn, grain, and 4 years of hay; corn - 1935, '38, '44; grain - 1933, '36, '39, '45; hay - 1934, '37, '40-'43, '46. Area: 4.13 ac. in 1933; 2.33 ac. in 1934-37; 2.24 ac. in 1938-46.

GENERALLY REPRESENTS: Steep, cultivated areas of the Upper Mississippi Loess Hills, having medium internal drainage, good surface drainage and moderate to severe erosion, in NW Illinois, NE Iowa, SE Minnesota and SW Wisconsin.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) La Crosse, Wis., Watershed UCN**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1933 P	1.45	0.51	2.28	2.31	4.72	2.06	5.75	1.08	4.88	1.72	0.06	0.33	27.15
Q	* .80	0	*1.29	* .68	.64	.26	.84	0	.14	.01	0	0	4.66
1934 P	.70	.06	1.42	1.02	.95	4.07	6.39	1.91	8.62	2.77	6.33	1.01	35.25
Q	* .50	0	0	.26	0	.32	1.55	.02	*1.25	.31	* .27	0	4.48
1935 P	2.05	.50	1.45	2.69	4.52	5.39	3.41	7.70	2.64	3.80	1.45	.56	36.16
Q	0	0	.14	.06	.12	* .36	*1.00	*2.18	.29	1.09	.17	0	5.41
1936 P	.77	1.34	1.76	1.99	3.36	2.09	.75	3.53	4.84	2.98	.66	1.02	25.09
Q	0	* .20	*2.07	0	*1.42	.30	0	.43	1.32	.60	.19	.11	6.64
1937 P	2.08	1.43	.50	3.37	3.30	4.16	.78	4.51	2.25	3.50	2.39	.62	28.89
Q	T	.55	*1.40	.03	.38	1.26	0	1.03	0	0	.11	0	4.76
1938 P	1.07	1.01	2.75	3.30	4.79	3.96	7.45	6.24	8.50	1.40	3.26	.84	44.57
Q	.07	.31	* .41	.11	.44	0	2.42	1.10	1.74	0	.09	0	6.69
1939 P	1.28	1.65	.55	2.48	2.21	2.14	1.85	8.61	.94	1.88	.25	.78	24.62
Q	* .05	.30	* .42	0	0	0	0	1.03	0	0	0	0	1.80
1940 P	.57	.71	1.25	4.45	3.88	5.88	2.10	7.43	.33	3.30	2.94	1.34	34.18
Q	0	0	*1.68	* .55	0	.14	T	* .65	0	0	0	* .05	3.07
1941 P	1.27	.58	1.70	3.31	5.87	5.48	2.40	1.02	8.91	5.56	1.48	1.63	39.21
Q	0	.03	* .90	.14	.17	.06	.07	T	.78	.34	0	0	2.49
1942 P	.23	.70	2.69	1.39	5.51	7.19	3.91	3.75	6.62	2.96	2.86	1.66	39.47
Q	0	0	* .01	0	0	.15	0	.05	.88	.21	0	0	1.30
1943 P	1.57	.32	1.26	1.02	3.18	3.41	3.46	3.33	1.71	2.39	1.17	T	22.82
Q	0	0	* .10	0	0	T	0	0	0	0	0	0	.10
1944 P	.96	1.61	2.42	3.10	2.99	4.67	3.76	4.97	2.49	.32	1.01	.82	29.12
Q	0	* .50	* .58	* .43	.02	1.18	.02	.25	.20	0	0	0	3.18
1945 P	.46	2.12	3.46	3.65	7.55	2.13	5.48	2.52	3.88	.20	3.22	1.68	36.35
Q	0	* .20	* .60	T	2.39	.23	1.29	.25	.54	0	.25	0	5.75
1946 P	2.44	.56	2.23	.46	2.74	5.14	1.52	3.30	7.38	2.97	1.73	.76	31.23
Q	*1.40	* .75	*1.67	0	0	.01	.01	.02	.87	.01	0	0	4.74
P													
Q													
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Av. P	1.21	.94	1.84	2.47	3.97	4.13	3.50	4.28	4.57	2.55	2.06	.93	32.45
Av. Q	.20	.20	.81	.16	.40	.31	.51	.50	.57	.18	.08	.01	3.93
Normal P	1.24	1.18	1.85	2.95	3.93	4.50	3.62	3.36	3.90	2.31	1.95	1.30	32.09

**Notes:** \* Partially estimated. Normal P based on 65 yr. record (1891-1955) at Hillsboro, Wis.  
Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records: P - good;  
Q - Jan., Feb., Mar., poor - Apr. to Dec., fair.

LOCATION: La Crosse Co., Wis.; 3 mi. E. of La Crosse; La Crosse River, Mississippi River Basin.

AREA: 2.71 ac.

SHAPE: Roughly rectangular, about 300 ft. wide by 390 ft. long.

SLOPES: 15% is in 6-10% class; 24% in 10-15%; 27% in 15-20%; 34% in 20-30%. Aspect SW.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (6-10 in.); subsoil - moderately permeable; internal drainage - medium. Fayette silt loam - 39%; Dubuque silt loam - 61%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 15%; IV - 51%; VI - 34%.

SURFACE DRAINAGE: Good; mostly overland flow to S boundary where it is diverted by metal troughs to the measuring station.

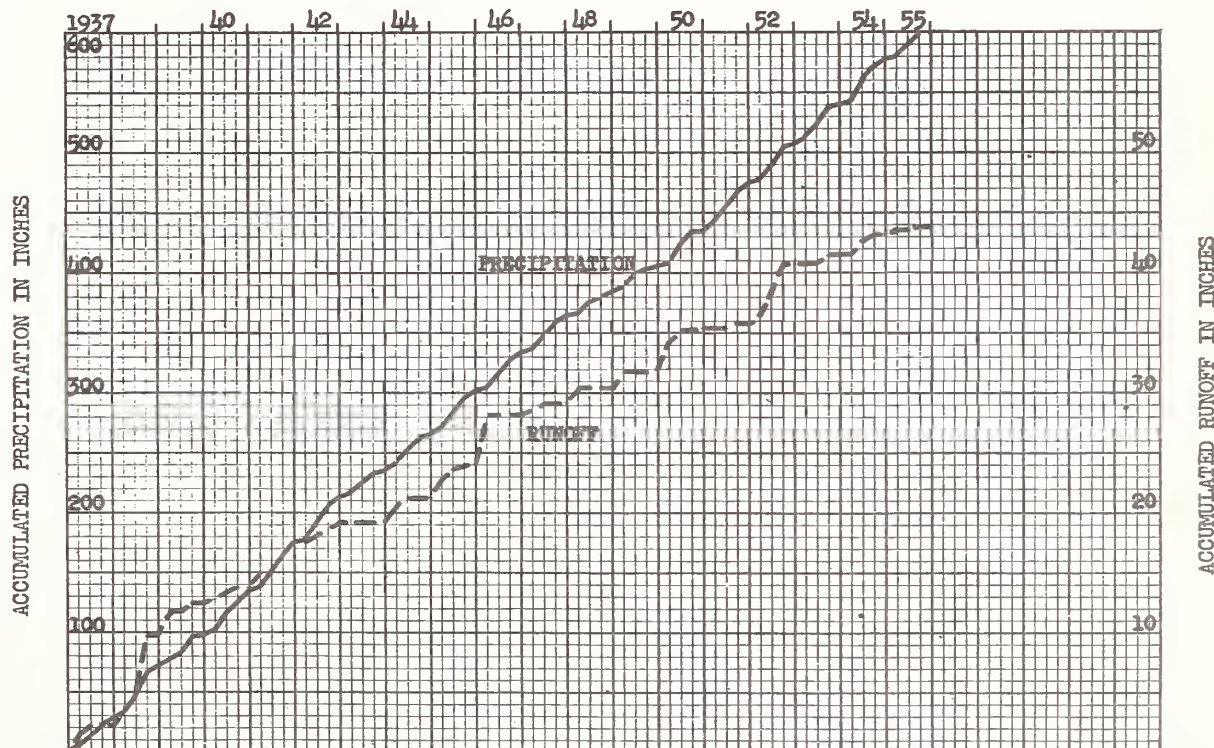
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - trapezoidal flume, continuous water stage recorder; precipitation - standard gage 1937-40, recording gage 1941-55.

WATERSHED CONDITIONS: Prior to 1937 - generally farmed in a 3 yr. rotation of corn, grain and hay; 1937-40 - upper half strip cropped in 3 yr. rotation of corn, grain and hay, lower half in hay; 1940-54 - area divided into six strips and farmed on the contour in a 6 yr. rotation of corn, grain and 4 years of hay; 1955 - established 3 yr. rotation of corn and 2 years of hay, corn wheel track planted and with interseeding of legumes.

GENERALLY REPRESENTS: Good conservation farming on rolling to steep areas of the Upper Mississippi Loess Hills, having medium internal drainage, good surface drainage and moderate erosion, in NW Illinois, NE Iowa, SE Minnesota and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) LaCrosse, Wis., Watershed CW**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P Q	2.08 0	1.43 .33	0.56 1.01	3.43 0	3.48 0	4.20 .70	0.83 0	4.47 .27	2.22 0	3.66 0	2.19 .17	0.48 0	29.03 2.48
1938 P Q	1.07 * .30	1.14 * .98	3.16 .18	3.50 .43	4.78 .15	4.32 .03	7.50 2.62	6.05 1.48	8.38 1.22	1.36 0	2.86 .01	.74 0	44.86 7.40
1939 P Q	1.17 .04	2.34 .50	.43 1.34	2.50 0	2.18 0	2.16 0	1.80 0	8.29 .58	.91 0	1.86 0	.25 0	.67 0	24.56 2.46
1940 P Q	.65 0	.99 0	2.26 .62	4.36 .18	3.70 0	5.80 .31	2.07 T	7.48 .41	.34 0	3.34 T	3.21 0	1.48 * .07	35.68 1.59
1941 P Q	2.05 0	.41 .03	2.26 .92	2.51 .07	6.10 .42	5.29 .26	2.17 .20	1.01 0	9.28 1.16	5.56 .38	1.48 .03	1.63 0	39.75 3.47
1942 P Q	.23 0	.70 0	2.69 .06	1.39 0	5.51 .06	7.19 .52	3.91 .03	3.75 .09	6.62 .73	2.96 .20	2.86 0	1.66 0	39.47 1.69
1943 P Q	1.57 0	.32 0	1.26 0	1.02 0	3.07 0	3.31 0	3.57 0	3.27 0	1.66 0	2.40 0	1.17 0	T 0	22.62 0
1944 P Q	.96 0	1.61 * .65	2.42 * .72	3.34 .11	3.02 .01	4.74 .49	3.83 0	4.69 .11	2.51 .01	.32 0	1.01 0	.82 0	29.27 2.10
1945 P Q	.46 0	2.12 * .30	3.46 * 1.20	3.65 T	7.55 .91	1.92 .05	5.29 .27	2.52 .03	3.97 .05	.20 0	3.22 .01	1.68 0	36.04 2.82
1946 P Q	2.44 * 1.50	.56 * 1.00	2.23 * 1.65	.46 0	2.74 0	5.16 0	1.48 0	3.24 0	7.24 .04	2.87 0	1.68 0	.76 0	30.86 4.19
1947 P Q	.78 .08	.37 .14	2.25 .21	3.07 * .41	3.19 0	7.41 .02	3.17 .02	2.57 0	3.69 0	2.42 0	1.66 0	1.24 0	31.82 .88
1948 P Q	.15 0	1.72 * 1.00	1.15 .34	2.82 0	2.87 0	2.79 0	1.01 0	1.56 0	1.63 0	1.01 0	2.26 0	1.28 0	20.25 1.34
1949 P Q	1.78 * .10	.43 * .50	3.18 * .75	1.81 0	2.59 0	3.46 0	2.64 0	1.55 0	1.01 0	.70 0	.48 0	1.16 * .15	20.79 1.50
1950 P Q	1.37 * .45	.78 0	1.60 * 1.79	3.86 0	4.52 .51	5.22 .38	6.13 .14	2.67 0	1.73 0	1.12 0	.46 0	1.58 0	31.04 3.27
1951 P Q	.92 0	1.45 0	3.77 * .08	4.85 * .02	3.38 0	5.00 .06	5.68 .48	4.11 0	2.83 0	4.05 .08	1.71 0	.77 0	38.52 .72
1952 P Q	1.68 * .10	.61 0	2.24 * .50	1.03 0	3.33 0	6.62 1.63	9.23 2.20	5.06 .29	.93 0	T 0	2.33 0	1.12 0	34.18 4.72
1953 P Q	.96 0	2.06 0	1.56 * .15	4.91 0	2.15 .01	4.39 0	11.15 .60	2.07 .09	.48 0	.44 0	1.53 0	1.24 0	32.94 .85
1954 P Q	.58 0	.42 0	1.17 .01	8.06 .79	1.80 0	7.24 .57	3.55 .33	2.60 T	4.59 0	4.77 0	1.09 0	.49 0	36.36 1.70
1955 P Q P Q	.38 0  0	.52 * .10  0	1.14 * .28  0	2.90 0  0	4.19 T  0	2.99 0  0	4.14 * .35  0	.71 0  0	1.67 0  0	1.91 0  0	.88 0  0	.67 0  0	22.10 .73  0
Av. P Av. Q	1.12 .14	1.05 .29	2.04 .62	3.13 .11	3.69 .11	4.70 .26	4.17 .38	3.56 .18	3.25 .17	2.16 .03	1.70 .01	1.02 .01	31.59 2.31
Normal P	1.24	1.18	1.85	2.95	3.93	4.50	3.62	3.36	3.90	2.31	1.95	1.30	32.09

Notes: \* Partially estimated. Normal P based on 65 yr. record (1891-1955) at Hillsboro, Wis.  
Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records: P - good;  
Q - Jan., Feb., Mar., poor - Apr. to Dec., good.



LOCATION: La Crosse Co., Wis.; 3 mi. E. of La Crosse; La Crosse River, Mississippi River Basin.

AREA: 3.06 ac.

SHAPE: Roughly triangular; base - 650 ft., altitude - 450 ft.

SLOPES: 7% is in 2-6% class; 29% in 6-10%; 38% in 10-15%; 26% in 15-20%. Aspect W.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (6-10 in.); subsoil - moderately permeable; internal drainage - medium. Fayette silt loam - 72%; Dubuque silt loam - 28%.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 36%; IV - 64%.

SURFACE DRAINAGE: Good; principal waterway - 550 ft., mostly overland flow to SE and W boundaries where it is diverted by dikes to the measuring station.

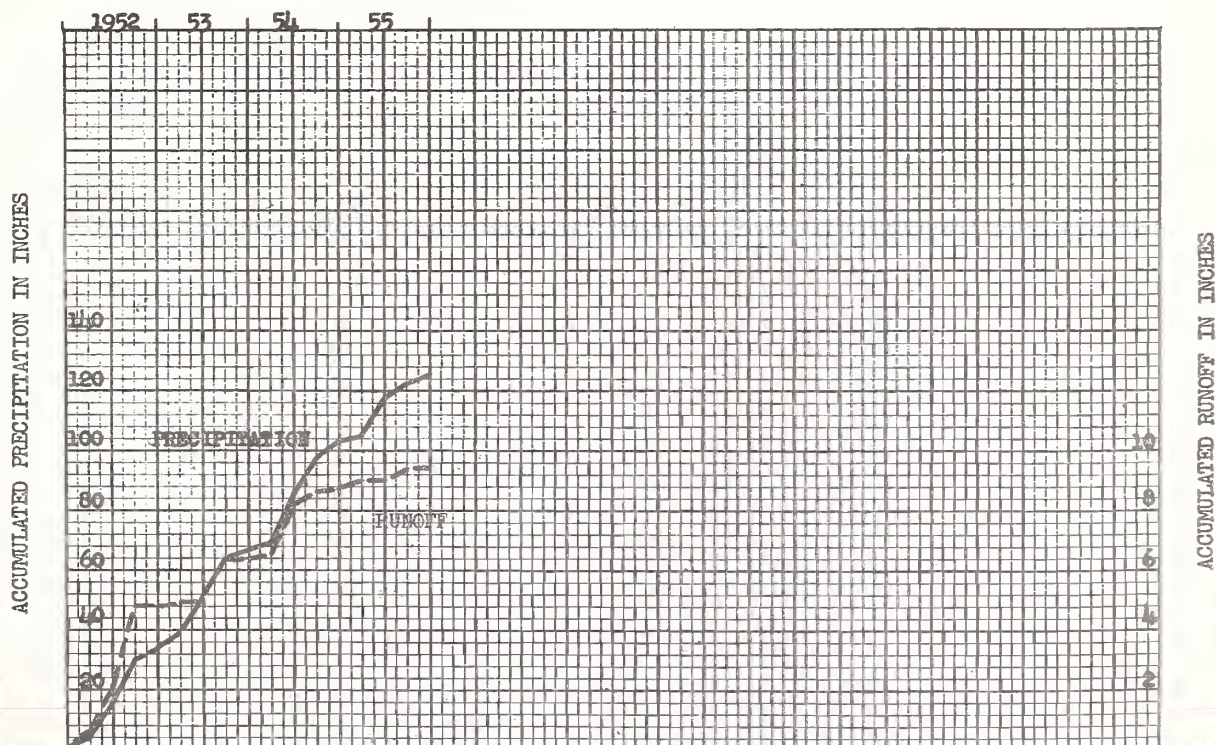
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - trapezoidal flume, continuous water stage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: 1933-37 - part of this watershed was the unterraced cultivated area farmed in 3 yr. rotation of corn, grain, hay; 1938-46 - continuous hay on lower third and 6 yr. rotation of corn, grain, and 4 years of hay on the upper two-thirds; 1947-51 - permanent hay; 1952 - established as 6 yr. rotation of corn, grain, and 4 years of hay with 6 strips 50 ft. wide having a 2% grade toward the outlet channel; 1955 - changed to 3 yr. rotation of corn and 2 years of hay, corn wheel track planted and with interseeding of legumes.

GENERALLY REPRESENTS: Good conservation farming on rolling areas of the Upper Mississippi Loess Hills, having medium internal drainage, good surface drainage and moderate erosion in NW Illinois, NE Iowa, SE Minnesota and SW Wisconsin.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) La Crosse, Wis., Watershed CWA**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1952 P	1.68	0.61	2.24	1.03	3.33	6.62	9.23	5.06	0.93	T	2.33	1.12	34.18
Q	* .10	0	* .65	0	0	1.39	2.30	.42	0	0	.01	0	4.87
1953 P	.96	2.06	1.56	4.91	2.15	4.39	11.15	2.07	.48	.44	1.53	1.24	32.94
Q	0	0	* .15	0	.03	.01	1.22	.17	0	0	0	0	1.58
1954 P	.58	.42	1.17	8.06	1.80	7.24	3.55	2.60	4.59	4.77	1.09	.49	36.36
Q	0	0	* .15	.96	0	.66	.42	.03	.01	.15	0	0	2.38
1955 P	.38	.52	1.14	2.90	4.19	2.99	4.14	.71	1.67	1.91	.88	.67	22.10
Q	0	0	.23	0	0	.04	.40	0	0	0	0	0	.67
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Av. P	.90	.90	1.53	4.22	2.87	5.31	7.02	2.61	1.92	1.78	1.46	.88	31.40
Av. Q	.03	0	.30	.24	.01	.12	1.08	.15	0	.04	0	0	2.27
Normal P	1.24	1.18	1.85	2.95	3.93	4.50	3.62	3.36	3.90	2.31	1.95	1.30	32.09

**Notes:** \* Partially estimated. Normal P based on 65 yr. record (1891-1955) at Hillsboro, Wis.  
Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records: P - good;  
Q - good.



LOCATION: La Crosse Co., Wis.; 3 mi. E. of La Crosse; La Crosse River, Mississippi River Basin.

AREA: 1.01 ac.

SHAPE: Long, narrow, about 50 ft. wide by 850 ft. long.

SLOPES: 100% is in 15-20% class. Aspect S.

SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (6-10 in.); subsoil - moderately permeable; internal drainage - medium. Dubuque silt loam - 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: IV - 100%.

SURFACE DRAINAGE: Good; overland flow to terrace channel, variable graded terrace 1 to 3 in. per 100 ft.; terrace 850 ft. long, vertical interval between terraces - 9 ft.

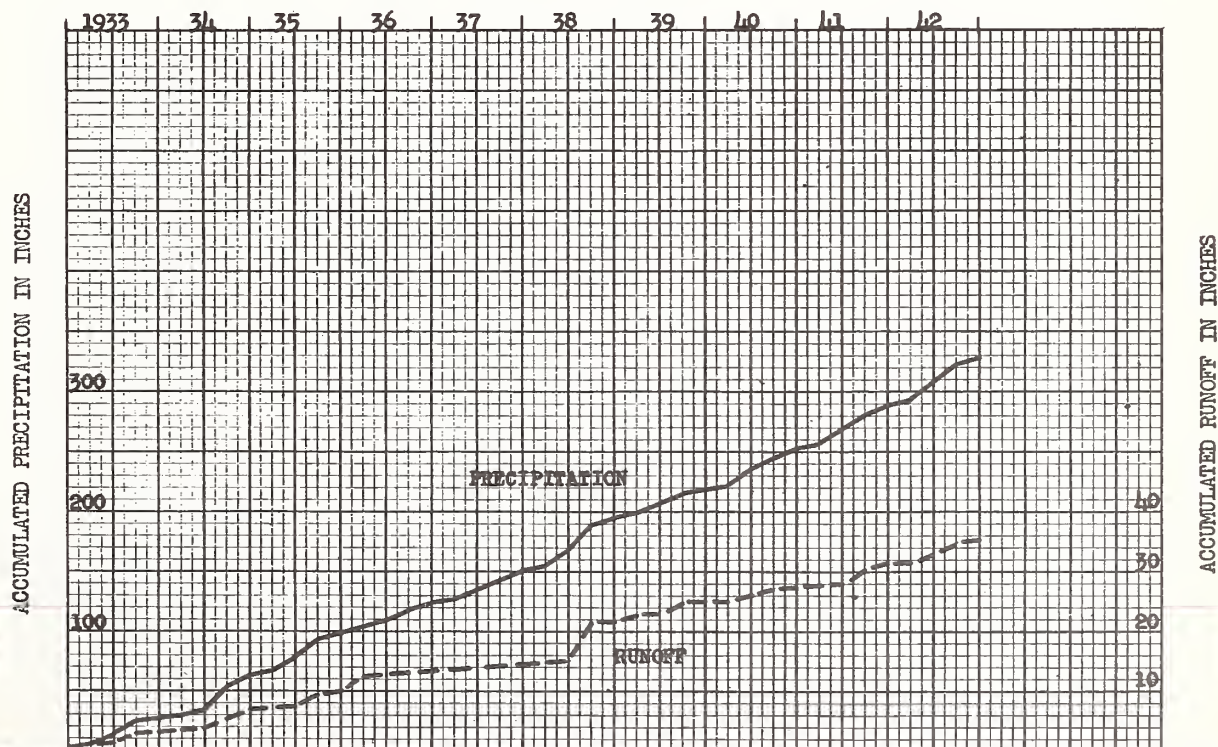
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 1 ft. Parshall flume 1933-36, trapezoidal flume 1937-42, continuous water stage recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Prior to 1933 - soil run down and unproductive as result of 3 yr. rotation of corn, grain, hay not on the contour; 1933-42 - moderately grazed bluegrass pasture. Terrace built in 1932.

GENERALLY REPRESENTS: Variable graded pasture terraces on steep slopes and shallow soil areas of the Upper Mississippi Loess Hills, having medium internal drainage, good surface drainage and moderate to severe erosion in NW Illinois, NE Iowa, SE Minnesota and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.



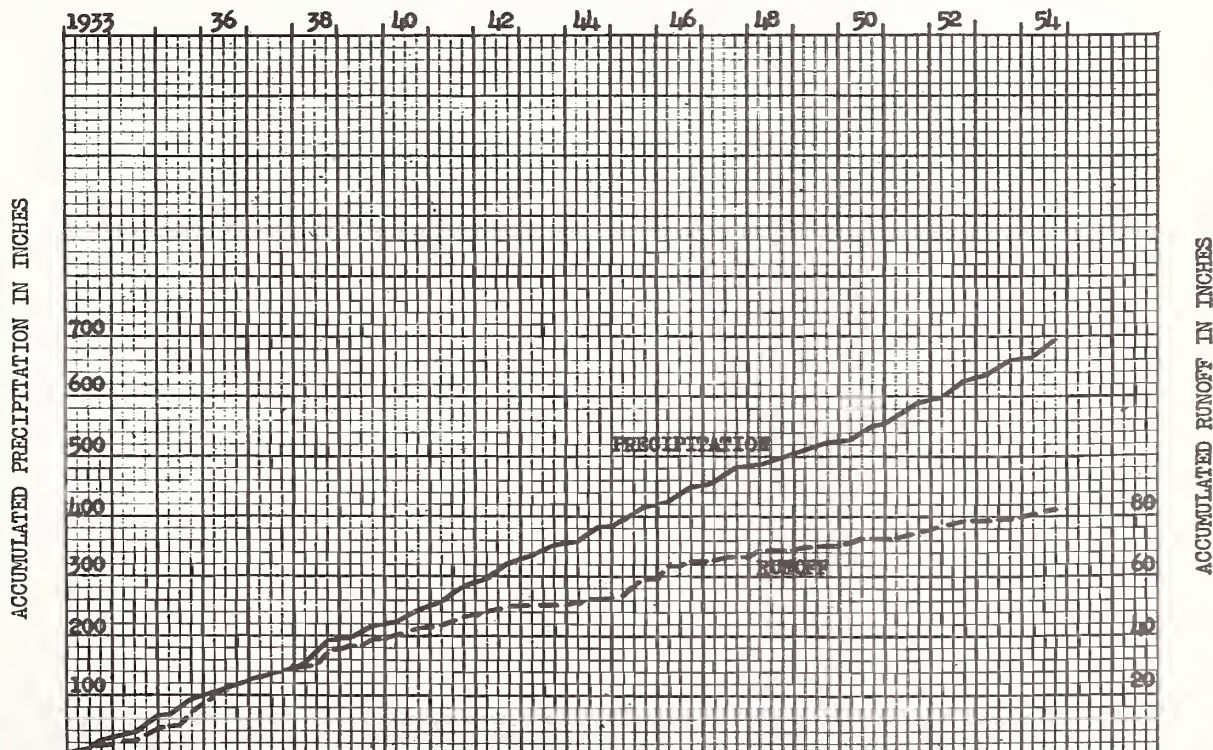
**MONTHLY PRECIPITATION AND RUNOFF (Inches)    La Crosse, Wis., Watershed E-3**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1933 P	1.45	0.51	2.28	2.31	4.72	2.06	5.75	1.08	4.88	1.72	0.06	0.33	27.15
Q	* .60	0	* .66	* .44	.02	* .39	.93	0	.14	.04	0	0	3.22
1934 P	.70	.06	1.42	.92	.99	3.89	6.32	1.71	8.52	2.79	6.33	1.01	34.66
Q	* .50	0	0	.11	0	* .33	1.47	0	* .47	.68	.03	0	3.59
1935 P	2.05	.50	1.45	2.81	4.01	5.45	3.45	7.74	2.65	3.83	1.45	.56	35.95
Q	* .10	T	.23	.01	.09	.04	.31	1.93	.06	.52	0	0	3.29
1936 P	.77	1.34	1.76	1.84	3.58	2.05	.78	3.70	4.98	3.06	.63	1.02	25.51
Q	0	* .10	*2.06	0	.11	.01	0	.26	.27	.35	T	0	3.16
1937 P	2.08	1.43	.37	2.46	3.20	4.29	.67	4.30	2.19	3.56	2.39	.62	27.56
Q	0	0	.17	T	0	.50	0	.12	0	.02	.27	0	1.08
1938 P	1.07	1.01	2.62	3.50	4.56	4.15	7.07	6.36	7.99	1.39	3.26	.84	43.82
Q	.11	* .15	.01	.04	.04	.10	1.87	2.19	2.61	0	.21	0	7.33
1939 P	1.28	1.65	.55	2.15	2.14	2.34	1.75	8.88	.94	1.81	.25	.78	24.52
Q	.04	T	*1.16	0	0	0	0	2.12	0	0	0	0	3.32
1940 P	.57	.71	1.25	3.79	3.66	5.64	2.02	7.10	.32	2.76	2.94	1.34	32.10
Q	0	.02	.04	.46	0	.57	.01	1.00	0	.06	0	.04	2.20
1941 P	1.27	.58	1.70	2.94	5.78	5.18	2.34	.97	8.37	4.99	1.73	1.63	37.48
Q	0	.03	.13	.09	.25	.19	.43	0	1.86	1.23	0	0	4.21
1942 P	.23	.70	2.69	1.40	5.88	7.32	3.75	3.40	6.65	3.10	2.86	1.66	39.64
Q	0	0	0	0	.02	1.50	.02	.45	1.27	.82	0	0	4.08
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Q													
P													
Q													
P													
Q													
P													
Q													
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Q													
P													
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P													
Q													
Av. P	1.15	.85	1.61	2.41	3.85	4.24	3.39	4.52	4.75	2.90	2.19	.98	32.84
Av. Q	.14	.03	.45	.11	.05	.36	.50	.81	.67	.37	.05	T	3.54
Normal P	1.24	1.18	1.85	2.95	3.93	4.50	3.62	3.36	3.90	2.31	1.95	1.30	32.09

**Notes:** \* Partially estimated. Normal P based on 65 yr. record (1891-1955) at Hillsboro, Wis.  
Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records: P - good;  
Q - Jan., Feb., Mar., poor - Apr. to Dec., good.

LA CROSSE, WISCONSIN Watershed A-4LOCATION: La Crosse Co., Wis.; 3 mi. E. of La Crosse; La Crosse River, Mississippi River Basin.AREA: 2.21 ac.SHAPE: Long, narrow, about 70 ft. wide by 1385 ft. long.SLOPES: 30% is in 2-6% class; 70% in 6-10%.SOILS: Loessial; topsoil - medium textured, granular structure, moderately deep (4-8 in.); subsoil - moderately permeable; internal drainage - medium. Fayette silt loam - 100%.EROSION: 2 - 100%.LAND CAPABILITY: II - 30%; III - 70%.SURFACE DRAINAGE: Good; overland flow to terrace channel; variable graded terrace 1 to 6 in. per 100 ft.; 1385 ft. long; vertical interval between terrace A-4 and next terrace above - 7 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 2 ft. Parshall flume 1933-38, trapezoidal flume 1939-54, continuous water stage recorder; precipitation - recording gage.WATERSHED CONDITIONS: Prior to 1932 - generally farmed in 3 yr. rotation of corn, grain and hay, not on the contour; terrace built in 1932; 1933-40 and 1944-46 - 3 yr. rotation of corn, grain and hay; 1941-43 - hay; 1947-54 - 4 yr. rotation of corn, grain and 2 yrs. of hay; corn - 1935, '38, '44, '47, and '51; grain - 1933, '36, '39, '45, '48, and '52; hay - 1934, '37, '40-43, '46, '49, '50, '53, and '54.GENERALLY REPRESENTS: Variable graded cultivated terraces on the Upper Mississippi Loess Hills, having medium internal drainage, good surface drainage and moderate erosion in NW Illinois, NE Iowa, SE Minnesota and SW Wisconsin.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Wisconsin Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) La Crosse, Wis., Watershed A-4**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1933 P Q	1.45 * .60	0.51 * .26	2.28 *1.00	2.31 .35	4.72 .17	2.06 .37	5.75 .90	1.08 0	4.88 .13	1.72 .03	0.06 0	0.33 0	27.15 3.81
1934 P Q	.70 * .55	.06 0	1.42 0	1.02 * .05	.95 0	4.07 .04	6.39 1.93	1.91 0	8.62 .68	2.77 .92	6.33 .62	1.01 0	35.25 4.79
1935 P Q	2.05 0	.50 0	1.45 .74	2.69 .10	4.52 .11	5.39 .58	3.41 1.34	7.70 3.81	2.64 .20	3.80 .93	1.45 .29	.56 0	36.16 8.10
1936 P Q	.77 0	1.34 * .15	1.76 *2.78	1.99 .01	3.36 2.01	2.09 .31	.75 0	3.53 .47	4.84 1.47	2.98 .58	.66 .08	1.02 .07	25.09 7.93
1937 P Q	2.08 0	1.43 * .16	.19 *1.06	2.74 .08	3.17 .31	4.28 1.24	.72 0	4.30 .88	2.11 .04	3.62 .04	2.39 .12	.62 0	27.65 3.93
1938 P Q	1.07 * .01	1.01 * .41	2.61 * .47	3.36 .38	4.82 .45	4.41 T	7.47 2.14	5.48 1.43	8.43 1.64	1.12 0	3.26 .03	.84 0	43.88 6.96
1939 P Q	1.28 .11	1.65 .06	.55 * .47	2.23 0	2.03 T	2.12 0	1.64 0	8.03 2.67	.87 0	1.82 .01	.25 0	.78 0	23.25 3.32
1940 P Q	.57 0	.71 0	1.25 *1.19	4.23 .71	3.33 0	5.34 .54	2.11 T	7.41 1.36	.35 0	3.17 .04	2.94 0	1.34 T	32.75 3.84
1941 P Q	1.27 0	.58 * .02	1.70 *1.07	2.54 .35	6.21 * .35	5.30 .13	2.17 .36	1.03 0	9.57 1.48	6.00 .77	1.48 0	1.63 0	39.48 4.53
1942 P Q	.23 0	.70 0	2.50 * .40	1.37 0	5.85 0	7.04 .56	3.91 .01	3.76 .21	6.69 1.02	2.95 .32	2.86 .01	1.66 0	39.52 2.53
1943 P Q	1.57 0	.32 0	1.26 0	1.11 0	3.48 0	3.47 0	3.46 .01	3.53 0	1.68 0	2.54 0	1.17 0	T 0	23.59 .01
1944 P Q	.96 0	1.61 * .75	2.42 *1.03	3.20 * .07	3.24 0	4.66 .78	3.65 .01	5.23 .37	2.43 .06	.40 0	1.01 0	.82 0	29.63 3.07
1945 P Q	.46 0	2.12 * .30	3.46 * .67	3.51 .03	7.99 2.88	2.23 .58	5.53 1.30	2.59 .26	3.98 .58	.17 0	3.22 .39	1.68 0	36.94 6.99
1946 P Q	2.44 *1.50	.56 *1.00	2.23 *1.48	.56 0	3.03 0	5.41 .02	1.57 .02	3.38 .04	7.82 .84	3.05 0	1.78 0	.76 0	32.59 4.90
1947 P Q	.78 0	.37 0	2.25 .27	3.07 .97	3.19 0	6.82 .47	3.09 .20	2.57 0	3.69 .06	2.42 0	1.66 0	1.24 0	31.15 1.97
1948 P Q	.15 0	1.72 *1.00	1.15 *1.03	2.82 0	2.87 0	2.79 0	1.01 0	1.56 .02	1.63 0	1.01 0	2.26 0	1.28 0	20.25 2.05
1949 P Q	1.78 0	.43 * .50	3.18 * .70	1.81 0	2.59 .01	3.46 .01	2.64 0	1.55 0	1.01 0	.70 0	.48 0	1.16 * .10	20.79 1.32
1950 P Q	1.37 * .40	.78 0	1.60 1.41	3.86 0	4.52 .41	5.22 .25	6.13 T	2.67 0	1.73 0	1.12 0	.46 0	1.58 0	31.04 2.47
1951 P Q	.92 0	1.45 0	3.77 0	4.85 *1.04	3.38 0	5.00 .05	5.68 .76	4.11 .03	2.83 0	4.05 .95	1.71 0	.77 0	38.52 2.83
1952 P Q	1.68 * .20	.61 0	2.24 *1.00	1.03 0	3.33 0	6.62 .77	9.23 1.36	5.06 .17	0.93 0	T 0	2.33 .02	1.12 0	34.18 3.52
Av. P Av. Q													
Normal P													

Notes:



**MONTHLY PRECIPITATION AND RUNOFF (Inches) La Crosse, Wis., Watershed A-4**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1953 P	0.96	2.06	1.56	4.91	2.15	4.39	11.15	2.07	.48	.44	1.53	1.24	32.94
Q	0	0	0	T	T	0	.98	.11	0	0	0	0	1.09
1954 P	.58	.42	1.17	8.06	1.80	7.24	3.55	2.60	4.59	4.77	1.09	.49	36.36
Q	0	0	*.33	1.15	0	.33	.33	.62	0	.17	0	0	2.37
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Av. P	1.14	.95	1.91	2.88	3.66	4.52	4.14	3.69	3.72	2.30	1.84	1.00	31.75
Av. Q	.15	.21	.78	.24	.30	.32	.53	.54	.37	.22	.07	.01	3.74
Normal P	1.24	1.18	1.85	2.95	3.93	4.50	3.62	3.36	3.90	2.31	1.95	1.30	32.09

**Notes:** \* Partially estimated. Normal P based on 65 yr. record (1891-1955) at Hillsboro, Wis. Months of Jan., Feb., Mar., and Dec. include snow and snow melt. Quality of records: P - good; Q - Jan., Feb., Mar., fair - Apr. to Dec., good.



LOCATION: Benton Co., Arkansas; 5 mi. SSW of Bentonville; Arkansas River Basin.

AREA: 10.03 ac.

SHAPE: Roughly rectangular, about 550 ft. wide by 750 ft. long.

SLOPES: 100% is in 1-3% class. Aspect S.

SOILS: Reddish Prairie and Gray-Brown Podzolic; topsoil - deep, fine textured and gravelly weak crumbly structure, moderately permeable; subsoil - fine textured, with chert fragments, moderately well drained lying on (20-30 inches) relatively impervious parent material. Centerton silt loam 25%, Baxter fine gravelly silt loam 59%, Newtonia silt loam, mottled phase 16%.

EROSION: 2 - 50%; 3 - 50%.

LAND CAPABILITY: II - 41%; III - 59%.

SURFACE DRAINAGE: Good, length of principal waterway 800 ft.; area is natural watershed with the divide not well defined (maintained by dike), 1 short and 1 long diversion perpendicular to main drain; one major depression or drain located 1/4 of width on west side.

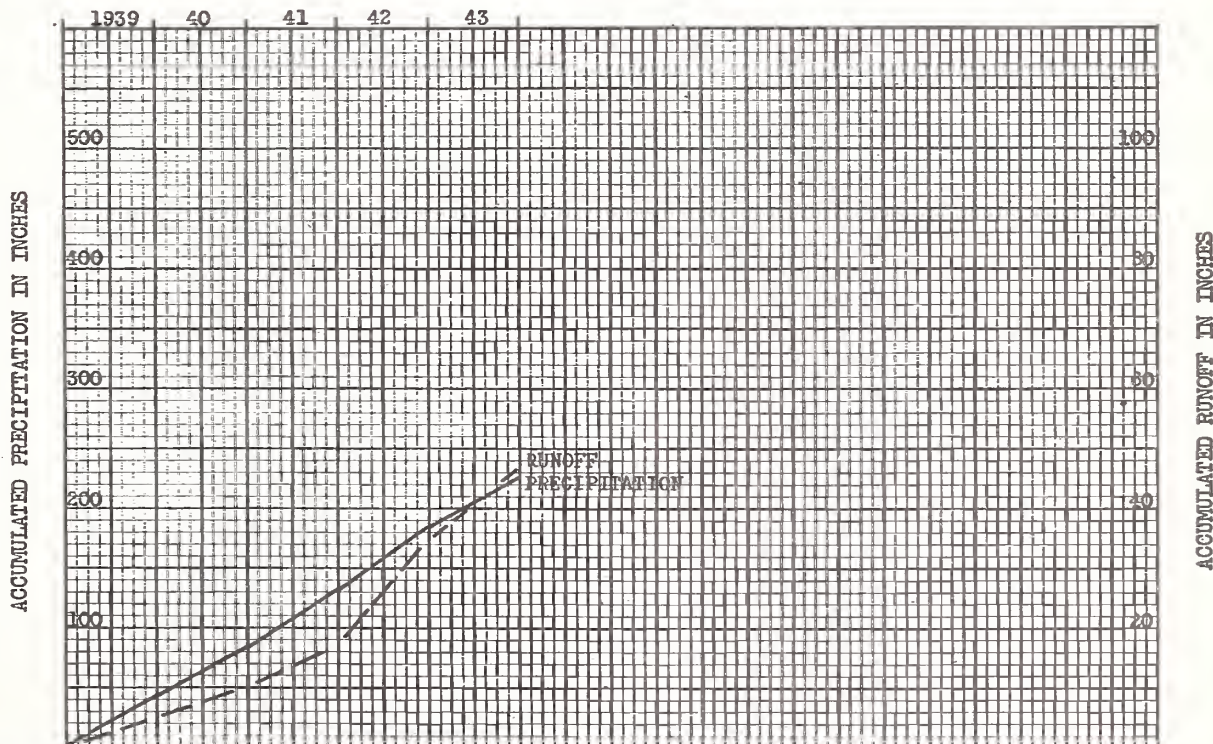
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested V-notch weir with 3:1 side slopes, 6 hr. chart; precipitation - standard and recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Cultivated land with alternate years in small grain and clean tilled crops (corn, beans, cane). Farmed across the slope and occasionally with the slope. No soil amendments, legumes or grass in rotation. Two crops grown each year 1940, 1942, and 1944.

GENERALLY REPRESENTS: Cultivated land of the Northern Ozarks in northern Arkansas, eastern Oklahoma and southern Missouri with no conservation practices.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of U. S. D. A. and Arkansas Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Bentonville, Arkansas, Watershed W-1**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q										0.76 0	5.17 .11	1.05 0	6.98 .11
1939 P Q	3.11 0	4.82 .44	1.78 .06	4.02 .04	7.28 1.54	8.34 2.32	0.56 0	2.69 .05	0.54 0	5.05 .54	2.85 0	1.41 0	42.45 4.99
1940 P Q	.39 0	1.54 0	1.41 T	5.74 .33	2.18 .08	3.05 .14	2.19 .17	7.93 1.86	6.80 2.13	2.29 .02	3.54 .07	3.81 .32	40.87 5.12
1941 P Q	3.83 .75	1.69 0	.57 0	7.59 2.22	.29 0	5.39 .28	2.64 T	4.20 .27	4.76 .46	13.74 3.10	2.36 .30	2.36 .16	49.42 7.54
1942 P Q	1.12 .02	3.39 1.37	1.20 T	8.73 3.70	2.20 .11	7.86 3.11	.76 0	4.97 .41	6.56 .23	7.22 4.14	6.41 3.23	3.61 1.15	54.03 17.47
1943 P Q	0 0	.90 .03	2.81 T	3.26 .03	16.44 11.17*	3.69 .59*	.45 0	2.01 .01	5.47 .50	3.99 .27	.64 0	2.68 0	42.34 12.60*
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**Av. P ** Av. Q	1.69 .15	2.47 .37	1.55 .01	5.87 1.26	5.68 2.58	5.67 1.29	1.32 .03	4.36 .52	4.83 .66	6.46 1.61	3.16 .72	2.77 .33	45.83 9.53
Normal P	2.67	2.27	3.43	4.74	5.09	5.20	3.29	4.04	4.22	3.99	3.28	2.46	44.68

**Notes:** # Station discontinued September 9, 1947. Records for 1944-47 not usable for volume of flow.  
 \* Partially estimated. \*\* Does not include part year amounts for 1938. Normal P based on USDC  
 Weather Bureau Normal Precipitation at Bentonville, Ark. Quality of records: P - good; Q - good  
 1938-42, poor 1943.

6-56

BENTONVILLE, ARKANSAS Watershed W-2

LOCATION: Benton Co., Arkansas; 7 mi. SW of Bentonville; Arkansas River Basin.

AREA: 9.34 ac.

SHAPE: Roughly rectangular, about 450 ft. wide by 1000 ft. long.

SLOPES: 28% is in 1-3% class; 72% in 3-6%. Aspect S.

SOILS: Gray-Brown Podzolic; topsoil - gravelly or stony fine textured, weak crumbly structure moderately permeable; subsoil - fine textured with chert fragments lying on angular chert formed from Boone limestone at 24-36 inches which limits permeability; good internal drainage. Baxter fine gravelly silt loam 28%, Baxter gravelly silt loam 49%, and Baxter stony silt loam 23%.

EROSION: 2 - 51%; 3 - 49%.

LAND CAPABILITY: II - 28%; III - 72%.

SURFACE DRAINAGE: Good, length of principal waterway 1100 ft.; area is natural watershed with short diversions perpendicular to main drain; one major depression or drain up the center.

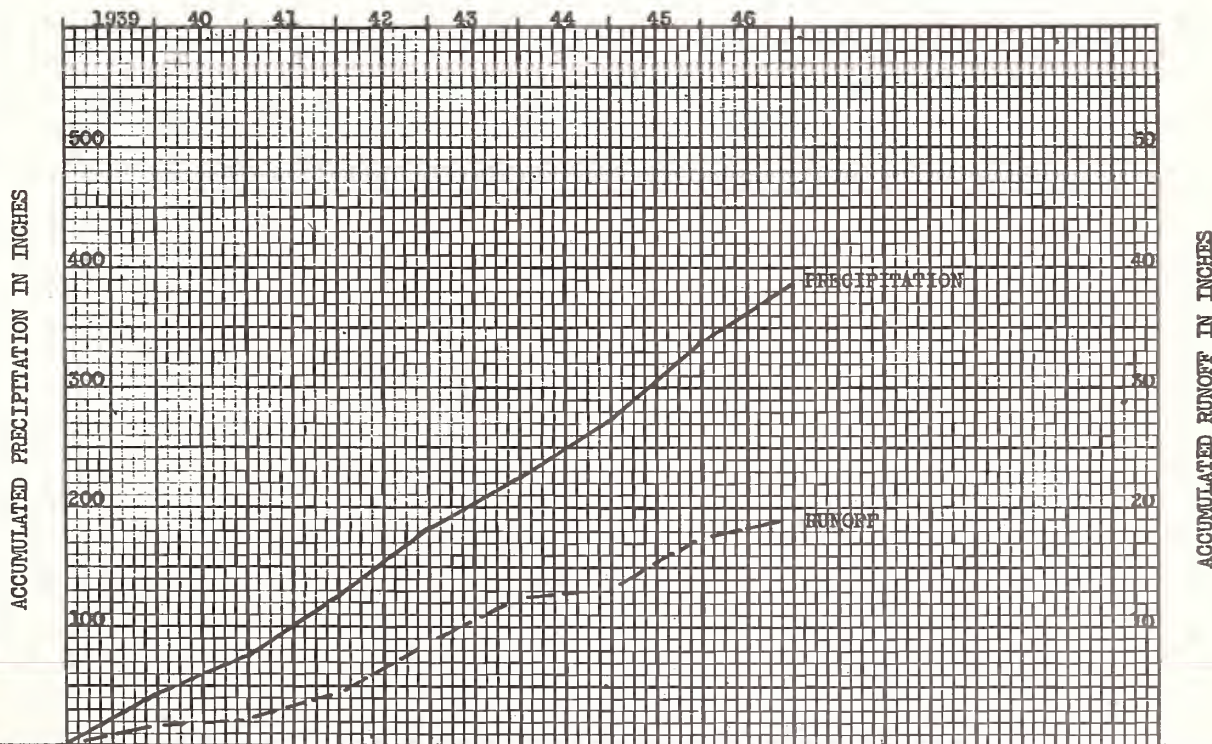
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested V-notch concrete weir with 3:1 side slopes, 6 hr. chart; precipitation - standard gage and recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Formerly cultivated land, in 1937 it was in small grain. Limed and seeded to orchard grass, lespedeza and hop clover in 1938 and 1939. 300 ft. of main drain (gully) sloped and sodded to Bermuda grass in 1939. Intermittent grazing for period of record and a poor to good cover (including native grasses and weeds) was maintained. Corn grown on upper 1/3 in 1942. Area burned in March 1945. February 1947 upper 1/2 of watershed was plowed.

GENERALLY REPRESENTS: Pasture land on steep formerly cultivated land of the Northern Ozarks in northern Arkansas, eastern Oklahoma and southern Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Arkansas Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Bentonville, Arkansas, Watershed W-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q										0.72 0	5.39 .29	0.99 0	7.10 .29
1939 P Q	3.15 .08	4.99 .45	2.13 .16	3.84 .06	7.31 .31	8.91 .81	0.50 0	2.47 .01	0.44 0	4.44 .11	3.08 T	1.32 0	42.58 1.99
1940 P Q	.36 0	1.49 0	1.44 0	5.88 .06	1.56 0	3.01 .01	1.06 0	5.29 .05	4.52 .09	2.23 .02	3.66 .03	3.83 .02	34.33 .28
1941 P Q	3.53 0	1.73 0	.55 0	7.78 .81	.42 0	4.95 .05	2.89 .01	3.62 0	5.11 .01	15.05 1.29	2.61 .12	2.17 .02	50.41 2.31
1942 P Q	1.19 0	2.73 .02	1.14 0	8.70 .27	2.12 0	8.53 1.72	.53 0	4.45 T	7.70 .42	6.67 .98	7.14 .58	3.81 .14	54.71 4.13
1943 P Q	.02 0	.96 0	2.76 0	2.87 .07	15.97 2.73	5.25 .72	.86 .01	1.77 .01	5.75 .04	4.67 .26	.56 0	2.89 T	44.33 3.84
1944 P Q	1.05 0	5.31 .01	5.37 .03	4.35 .06	6.52 .13	5.49 .30	2.20 .01	5.91 .03	2.71 0	3.66 .03	2.31 T	2.52 .01	47.40 .61
1945 P Q	.83 0	6.79 .26	11.91 1.04	9.86 1.08	5.09 .14	7.46 .40	4.54 .42	3.73 .21	12.28 .93	2.59 .04	.27 0	.92 0	66.27 4.52
1946 P Q	3.06 .01	3.80 .04	2.07 0	3.55 0	10.04 .22	5.47 .80	.37 0	.92 0	2.01 0	1.44 0	10.47 .16	5.22 .12	48.42 1.35
1947 P Q	.40 0	.31 0	2.14 0	6.48 .06	6.44 .88	5.73 .86	1.60 .02	2.45 .09	# #				25.55 1.91
P Q													
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** Av. P ** Av. Q	1.65 .01	3.48 .10	3.42 .15	5.85 .30	6.13 .44	6.13 .60	1.62 .06	3.52 .04	5.06 .19	5.09 .34	3.76 .11	2.84 .04	48.55 2.38
Normal P	2.67	2.27	3.43	4.74	5.09	5.20	3.29	4.04	4.22	3.99	3.28	2.46	44.68

Notes: # Station discontinued Sept. 9, 1947. \*\* Does not include the part year amounts for 1938 and 1947. Quality of records: P - good 1938-43, fair 1944-47; Q - good 1938-43, fair 1944-47. Normal P based on USDC Weather Bureau Normal Precipitation at Bentonville, Arkansas.



6-56, revised 2-59

BENTONVILLE, ARKANSAS Watershed W-5

LOCATION: Benton Co., Arkansas; 7 mi. SW of Bentonville; Arkansas River Basin.

AREA: 14.25 ac.

SHAPE: Roughly rectangular, about 400 ft. wide by 1600 ft. long.

SLOPES: 16% is in 1-5% class; 60% in 3-5%; 24% in 8-12%. Aspect S.

SOILS: Gray-Brown Podzolic; topsoil - fine textured (lower 2/3 of watershed either gravelly or stony), weak crumbly structure, shallow (6-8 inches); subsoil - fine textured with chert fragments lying on chert formed from Boone limestone at 24-36 inches which limits permeability; internal drainage slow. Centerton silt loam 16%, Baxter gravelly silt loam 30%, Baxter stony silt loam 24%, Baxter fine gravelly silt loam 30%.

LAND CAPABILITY: IV - 24%; VI - 76%.

SURFACE DRAINAGE: Good, length of principal waterway 1650 ft.; area is natural watershed with diversions perpendicular to main drain; one major depression or drain up the center.

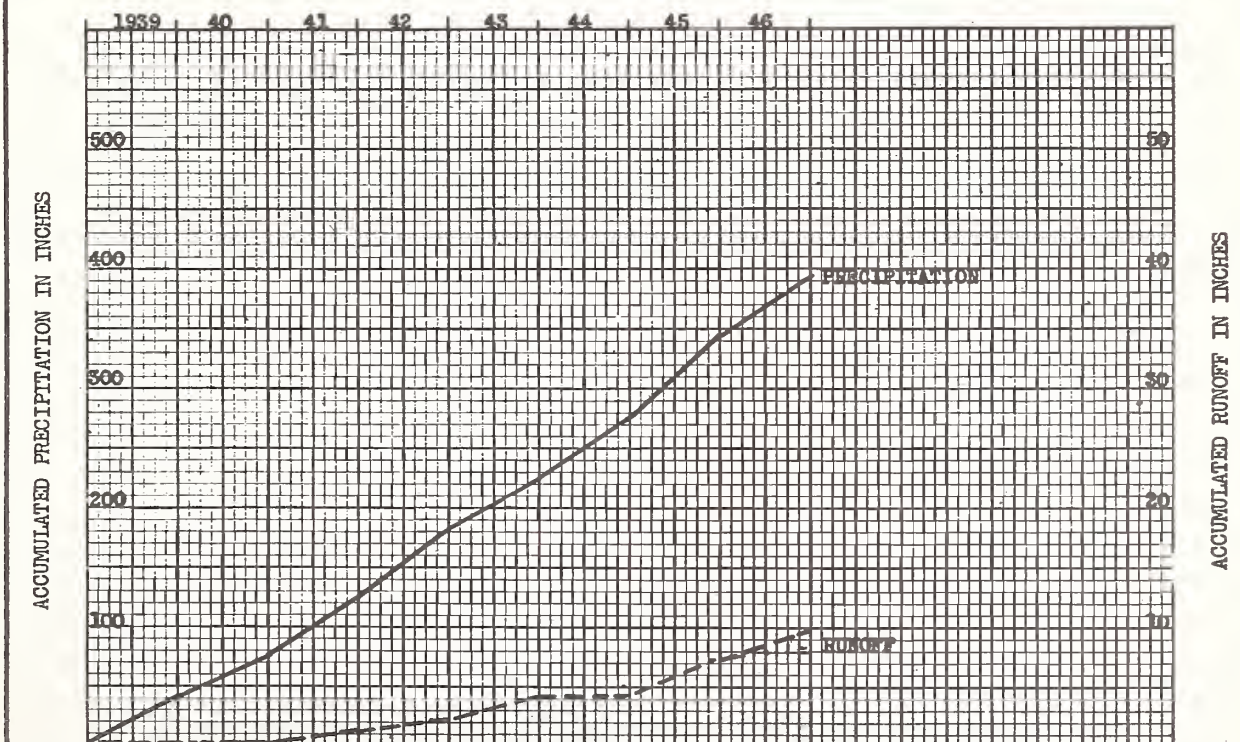
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested V-notch weir with 3:1 side slopes, 6 hr. chart; precipitation - standard and recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Lower half native grass and brush with hop clover and lespedeza grazed intermittently maintaining a poor to good cover, burned in March 1943 and 1945. Upper half rotated between grazing crops (lespedeza, hop clover, and native grasses) and cultivated crops; intermittent grazing that maintained a poor to good cover, oats harvested in 1940, burned in March 1943, clean cultivated corn in 1945, oats and lespedeza in 1946.

GENERALLY REPRESENTS: Pasture land of the Northern Ozarks in northern Arkansas, eastern Oklahoma and southern Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Arkansas Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Bentonville, Arkansas, Watershed W-3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q										0.72 0	5.63 0	1.01 0	7.36 0
1939 P Q	3.29 0	4.92 .01	2.16 0	3.85 0	7.07 0	8.33 .06	.44 0	2.57 0	.52 0	4.31 0	3.01 0	1.35 0	41.82 .07
1940 P Q	.43 0	1.49 0	1.37 0	6.04 T	1.73 T	3.04 T	1.11 0	5.40 T	4.33 .04*	2.25 0	3.71 0	3.91 0	34.81 .04*
1941 P Q	3.59 .07	1.73 0	.53 0	7.96 .91	.40 0	4.84 .03	2.62 0.	3.83 0	4.66 0	14.94 .57	2.74 .01	2.25 0	50.09 1.59
1942 P Q	1.25 <u>0</u>	2.79 0	1.21 0	9.02 0	2.15 0	8.57 <u>.04</u>	.48 0	4.57 0	8.04 0	6.53 .56	7.13 .42	3.80 .01	55.54 1.03
1943 P Q	0 0	.89 0	2.74 0	2.81 0	16.57 1.72	5.41 .02	.72 0	1.76 0	5.78 0	4.83 0	.56 0	2.88 0	44.95 1.74
1944 P Q	1.19 0	5.34 0	5.29 0	4.39 0	6.76 0	4.18 T	2.26 0	6.28 0	2.64 0	3.82 0	2.27 0	2.44 0	46.86 T
1945 P Q	.83 0	6.66 0	12.37 .03	9.90 .75	5. T	7.39 .07	4.63 .29	4.05 .33	12.16 1.70	3.29 T	.26 0	.60 0	67.17 3.17
1946 P Q	3.15 0	4.30 .03	2.07 0	3.66 0	10.49 <u>1.32</u>	5.68 .70	.36 0	.99 0	1.99 0	1.54 0	11.53 .09	5.89 .15	51.65 <u>2.29</u>
1947 P Q	.44 0	.28 0	2.55 0	7.01 0	7.69 0	8.43 .06	1.82 0	3.36 0	# #				31.58 .06
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	1.72 .01	3.52 T	3.47 T	5.95 .21	6.28 <u>.38</u>	5.93 <u>.12</u>	1.58 .04	3.68 .04	5.02 .22	5.19 .14	3.90 .06	2.89 .02	49.13 <u>1.24</u>
Normal P	2.67	2.27	3.43	4.74	5.09	5.20	3.29	4.04	4.22	3.99	3.28	2.46	44.68

Notes: # Station discontinued Sept. 9, 1947. \* Partially estimated. \*\* Does not include part year amounts for years 1938 and 1947. Quality of records: P - good 1938-43, fair 1944-47; Q - good 1938-43, fair 1944-47. Normal P based on USDC Weather Bureau Normal Precipitation at Bentonville, Arkansas.



LOCATION: Benton Co., Arkansas; 7 1/2 mi. SSW of Bentonville; Arkansas River Basin.

AREA: 24.0 ac.

SHAPE: Rectangular elliptical, about 850 ft. wide by 1740 ft. long.

SLOPES: 30% is in 8-12% class; 40% in 12-20%; 30% in over 20%. Aspect E.

SOILS: Gray-Brown Podzolic; topsoil - stony fine textured, weak crumbly structure, shallow (6-10 inches) permeable; subsoil - fine textured with chert fragments lying on relatively impervious angular chert formed from Boone limestone at 24-36 inches. Baxter stony silt loam 100%.

EROSION: 1 - 100%.

LAND CAPABILITY: IV - 30%; VII - 70%.

SURFACE DRAINAGE: Good, length of principal waterway 1830 ft.; area is natural waterway with very short diversion perpendicular to main drain; one major depression or drain up the center with two short minor drains.

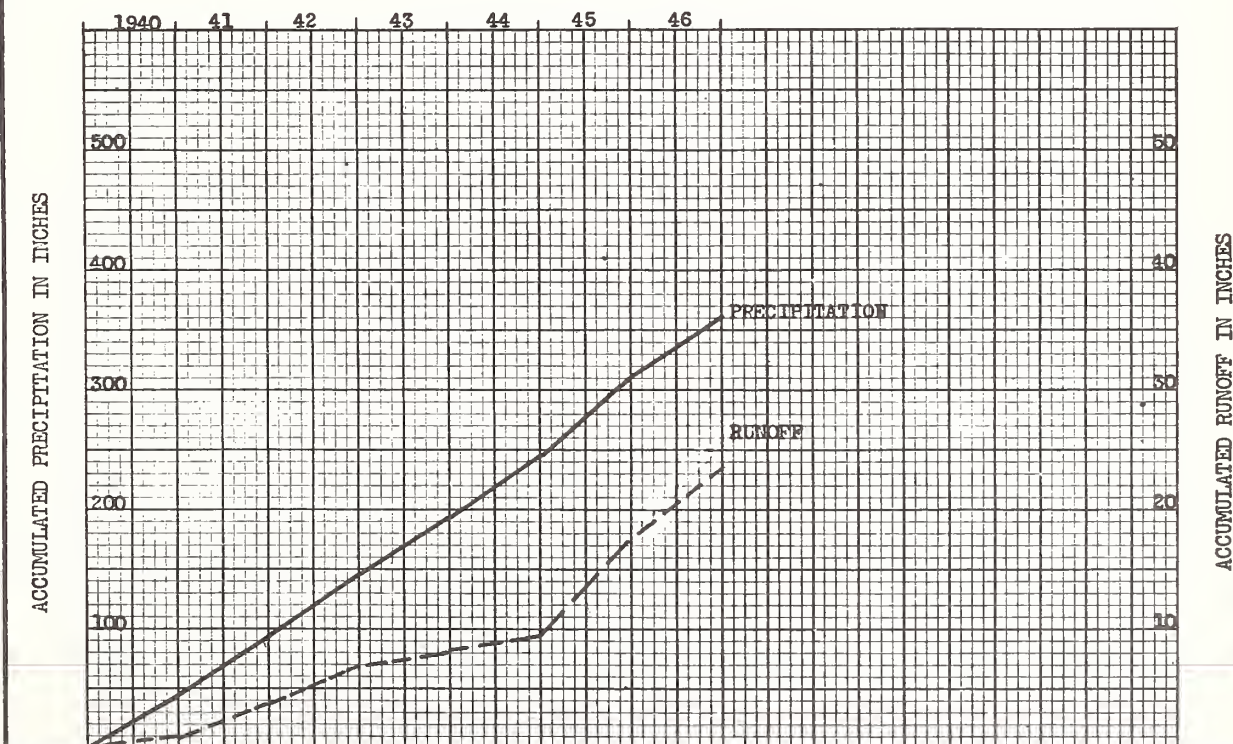
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested V-notch concrete weir with 3:1 side slopes, 6 hr. chart; precipitation - standard and recording gage, 12 hr. chart.

WATERSHED CONDITIONS: 21.5 acres are better than average woodland, 1.0 acres is cut over woods, and 1.5 acres are abandoned cropland. Major composition, black oak 53%, white oak 18%, red oak 9%, post oak 7%, blackjack 5% with a 2 1/2 inch litter on the ground and 99% canopy. Approximate dates of fires, 1914, 1928, and upper 1/4 of area had a light fire in March 1946. During the period of record, the area was protected from fire and grazing and a selective system of cutting was practiced - these maintained a good cover.

GENERALLY REPRESENTS: Well managed woods of the Northern Ozarks in northern Arkansas, eastern Oklahoma and southern Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Arkansas Agricultural Experiment Station.



Bentonville, Arkansas, Watershed N-4

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q			1.84 0	4.08 .23	6.86 .30	8.11 .13	0.63 0	2.29 0	0.38 0	5.38 0	2.87 0	1.37 0	33.81 .66
1940 P Q	.53 0	1.57 0	1.52 0	6.15 .49	2.43 0	3.64 0	1.90 0	8.26 0	5.75 .26	2.62 0	3.51 0	3.97 T	41.85 .75
1941 P Q	3.77 .96	1.80 0	.54 0	7.90 1.42*	.37 0	4.97 0	2.91 0	4.16 0	5.42 0	13.98 .66	2.23 0	2.56 0	50.61 3.04*
1942 P Q	1.21 0	3.38 .09	1.17 0	9.41 1.21	2.34 0	7.75 0	.95 0	4.99 0	6.95 0	7.84 .91*	6.43 .55	3.71 .34	56.13 3.10*
1943 P Q	0 0	.91 0	2.80 0	3.30 .17	16.20 1.15	4.82 0	1.08 0	1.80 0	5.97 0	4.33 0	.61 0	2.61 0	44.43 1.32
1944 P Q	1.36 0	5.40 .32	5.88 .80	4.09 0	5.13 .01	6.22 .12	2.38 0	7.81 0	2.26 0	3.79 0	2.11 0	2.86 0	49.29 1.25
1945 P Q	.97 0	9.09 1.91	12.03 2.47	10.28 1.91	5.32 .74	7.23 .05	4.01 0	3.35 0	11.23 .47	4.14 .27	.27 0	.89 0	68.81 7.82
1946 P Q	3.08 0	4.01 .74	2.11 0	4.18 0	11.01 3.44	5.16 0	1.39 0	.78 0	2.49 0	2.20 0	10.69 .25	5.10 1.71*	52.20 6.14*
1947 P Q	.72 0	.34 0	1.70 0	6.10 .41	5.86 .18	6.12 .01	1.89 0	1.56 0	# #				24.29 .60
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	1.56 .14	3.74 .44	3.72 .47	6.47 .74	6.11 .76	5.68 .02	2.09 0	4.45 0	5.72 .10	5.56 .26	3.69 .11	3.10 .29	51.89 3.33
Normal P	2.67	2.27	3.43	4.74	5.09	5.20	3.29	4.04	4.22	3.99	3.28	2.46	44.68

Notes: # Station discontinued Sept. 9, 1947. 1/ Estimated. \* Partially estimated. \*\* Does not include part year amounts for years 1939 and 1947. Quality of records: P - good 1939-43, fair 1944-47; Q - good 1939-40, fair 1941-47. Normal B based on USDC Weather Bureau Normal Precipitation at Bentonville, Arkansas.

6-56

BENTONVILLE, ARKANSAS Watershed W-5LOCATION: Benton Co., Arkansas; 5 mi. SSW of Bentonville; Arkansas River Basin.AREA: 19.4 ac.SHAPE: Roughly fan shape, 760 ft. wide, length of arc 2000 ft.SLOPES: 100% is in 1-3% class. Aspect SW.

SOILS: Gray-Brown and Red-Yellow Podzolic; topsoil - deep fine textured and gravelly fine textured weak crumbly structure, moderately permeable; subsoil - fine textured with chert or gravel, moderately well drained lying on relatively impervious parent material (36-40 inches) formed from Boone limestone. Centerton silt loam 41%; Baxter fine gravelly silt loam 35%; Clarksville fine gravelly silt loam 24%.

EROSION: 2 - 100%.LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good, length of principal waterway 1200 ft.; area is natural watershed with 2 diversions on the approximate contour at the lower end; one major depression that extends about 1/2 of the way to the top.

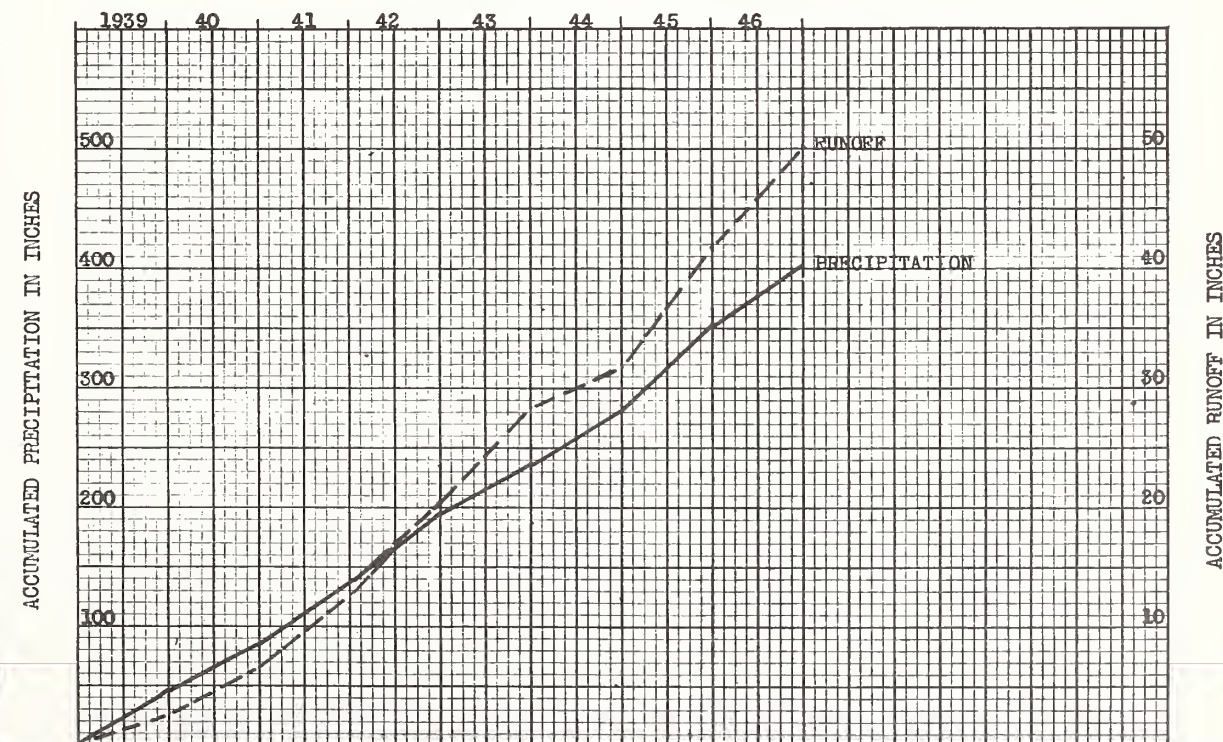
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested V-notch weir with 3:1 side slopes, 6 hr. chart; precipitation - standard and recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Cultivated, planted 1/3 orchard grass and clover, 1/3 clean tilled cultivated crops and 1/3 in close growing crops-all crops planted in 50 ft. contour strips 1939-1944. Cover maintained during these years, 1/3 poor, 1/3 fair, and 1/3 good. Area not farmed in 1945 and cover was good. In 1946 1/3 was clean cultivated and 2/3 broadcast crops, none in strips; cover was fair.

GENERALLY REPRESENTS: Well managed (stripcropped) cultivated land without terraces of the Northern Ozarks in northern Arkansas, eastern Oklahoma, and southern Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Arkansas Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches)

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 <sup>P</sup> Q										0.74 0	5.16 0	1.12 0	7.02 0
1939 <sup>P</sup> Q	3.32 0	4.96 .39	1.89 .11	4.16 .03	7.62 .81	8.45 1.17	0.71 0	2.57 T	0.43 0	5.24 .18	2.95 T	1.44 T	43.74 2.69
1940 <sup>P</sup> Q	.34 0	1.37 0	1.55 0	6.20 .17	2.46 T	3.22 .01	2.44 .03	8.64 1.39	6.57 2.05	2.44 .01	3.73 .08	3.95 .06	42.91 3.80
1941 <sup>P</sup> Q	3.88 .66	1.78 0	.52 0	8.16 2.52	.33 0	5.25 .23	2.79 .01	4.68 .19	4.81 .06	14.13 2.60	2.46 .05	2.42 .02	51.21 6.34
1942 <sup>P</sup> Q	1.11 0	3.49 .37	1.25 0	9.27 1.06	2.44 .01	8.04 1.13	.72 0	5.31 .08	6.81 .02	8.12 3.36	6.78 1.82	3.84 .49	57.18 8.34
1943 <sup>P</sup> Q	0 0	.92 0	2.68 0	3.22 .17	16.29 6.88	3.87 .08	.44 0	1.96 0	5.72 0	4.05 .01	.59 0	2.77 0	42.51 7.14
1944 <sup>P</sup> Q	1.05 0	5.22 .31	5.78 1.06	4.45 .16	5.63 .10	5.96 .86	2.29 .13	7.02 .46	2.18 0	4.33 .55	1.99 0	2.72 .04	48.62 3.67
1945 <sup>P</sup> Q	.77 0	8.88 3.33	11.71 5.58	10.21 4.20	5.38 .77	6.99 .22	3.74 .11	3.42 .01	10.20 .26	3.99 .44	.33 0	.59 0	66.21 14.92
1946 <sup>P</sup> Q	3.10 T	4.02 .23	2.67 T	3.91 0	9.27 1.96	4.79 .12	1.27 0	.94 0	2.70 .01	2.14 0	10.75 .45	5.04 .77	50.60 3.54
1947 <sup>P</sup> Q	.45 0	.19 0	1.65 0	6.09 .11	5.19 .72	5.20 .06	1.61 0	1.23 0	# #				21.61 .89
P Q													
P Q													
P Q													
P Q													
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P Q													
P Q													
P Q													
**Av. P **Av. Q	1.70 .08	3.83 .58	3.51 .84	6.20 1.04	6.18 1.32	5.82 .48	1.80 .04	4.32 .27	4.93 .30	5.56 .89	3.70 .30	2.85 .17	50.40 6.31
Normal P	2.67	2.27	3.43	4.74	5.09	5.20	3.29	4.04	4.22	3.99	3.28	2.46	44.68

Notes: # Station discontinued Sept. 9, 1947. \* Partially estimated. \*\* Does not include part year amounts for years 1938 and 1947. Quality of records: P - good 1938-43, fair 1944-47; Q - good 1938-43, fair 1944-47. Normal P based on USDC Weather Bureau Normal Precipitation at Bentonville, Arkansas.



LOCATION: Benton Co., Arkansas; 2 mi. SW of Bentonville; Arkansas River Basin.

AREA: 10.75 ac.

SHAPE: Roughly rectangular, about 800 ft. wide by 500 ft. long.

SLOPES: 100% is in 1-3% class. Aspect S.

SOILS: Reddish Prairie; topsoil - fine textured, granular structure, moderately permeable; subsoil - fine textured, fine angular blocky structure, well drained on (24-30 inches) tubular porous parent material; Centerton silt loam 49%; Newtonia silt loam (mottled phase) 51%.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good, length of principal waterway - terrace outlet channel - 700 ft.; four terraces (average length 940 ft.) with .2% average grade draining in one direction to outlet channel.

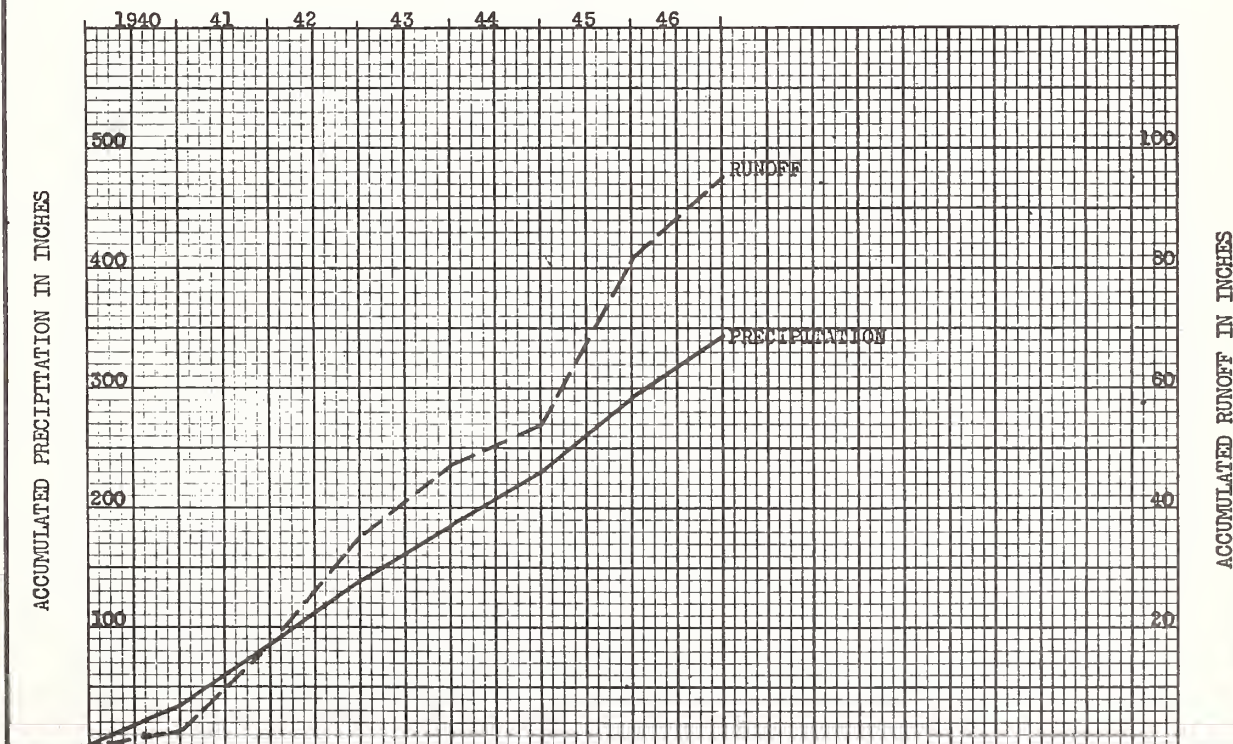
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested V-notch concrete weir with 3:1 side slopes, 6 hr. chart; precipitation - standard and recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Terraced with center 1/2 of interval in clover meadow, 1/2 of interval rotated between broadcast and clean tilled cultivated crops. 1939-1944, 50% poor to fair cover and 50% good cover. None cultivated 1944-47, some hay harvest and some grazing maintaining fair to good cover of mixed grasses, clover and lespedeza.

GENERALLY REPRESENTS: Well managed terraced cultivated land rotated between clean tilled crops and meadow or pasture crops of the Northern Ozarks in northern Arkansas, eastern Oklahoma and southern Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Arkansas Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Bentonville, Arkansas, Watershed W-6**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P						7.74	0.77	3.68	0.45	3.41	3.11	1.49	20.65
Q						2.89	0	.27	0	.27	.03	.03	3.49
1940 P	0.45	1.23	1.55	6.21	1.88	4.55	1.01	4.82	4.56	1.95	3.45	3.79	35.45
Q	.01	0	0	1.19	0	.18	0	.03	.83	.01	.12	.20	2.57
1941 P	3.50	1.56	.59	8.37	.55	5.14	1.81	5.37	4.07	13.70	2.73	2.15	49.54
Q	1.56	.33	.01	4.29	0	.75	0	.36	.05	5.41	.96	.38✓	14.10*
1942 P	1.34	2.71	1.45	8.78	2.48	9.18	1.16	4.51	5.70	7.03	7.51	3.53	55.38
Q	.13	.77	.01	3.04	.16	3.21	0	.01	.01	3.29	7.04*	1.58	19.25*
1943 P	0	.95	2.71	3.00	16.39	3.27	1.77	2.25	5.33	4.21	.63	2.41	42.92
Q	0	.03	.03	.49	9.95	0	.07	0	0	.41	0	0	10.98
1944 P	1.08	5.22	5.09	4.66	4.80	4.53	2.16	5.94	2.33	3.98	2.15	2.54	44.48
Q	.01	1.93✓	2.49	.80✓	.29	.43	0	.30	0	.73	0	.02	7.00*
1945 P	.76	6.84	11.57	9.67	6.26	7.82	2.60	2.82	9.75	3.53	.41	.76	62.79
Q	0	2.98*	9.61*	6.04	2.16	1.92	0	0	3.80	1.58	0	0	28.09*
1946 P	3.27	3.88	2.29	4.08	10.11	6.02	1.85	1.09	2.34	1.28	9.95	5.01	51.17
Q	.49	1.65	.31	.01	4.73	1.24	T	0	0	0	1.97	3.33	13.73
1947 P	.34	.35	2.06	5.91	6.83	6.62	.91	3.26	#				26.28
Q	.04*	0	.08	.92*	1.72*	.38	0	0	#				3.14*
P													
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** Av. P	1.49	3.20	3.61	6.40	6.07	5.79	1.77	3.83	4.87	5.10	3.83	2.88	48.84
** Av. Q	.31	1.10	1.78	2.27	2.47	1.11	.01	.10	.67	1.63	1.44	.79	13.67
Normal P	2.67	2.27	3.43	4.74	5.09	5.20	3.29	4.04	4.22	3.99	3.28	2.46	44.68

**Notes:** # Station discontinued Sept. 9, 1947. ✓ Estimated. \* Partially estimated. \*\* Does not include part year amounts for 1939 and 1947. Normal P based on USDC Weather Bureau Normal Precipitation at Bentonville, Arkansas. Quality of records: P - good 1939-43, fair 1944-47; Q - good 1939-40, fair 1941-47.



LOCATION: Alfalfa Co., Oklahoma; 2 mi. S. W. of Cherokee; Salt Fork of Arkansas River Basin.

AREA: 2.23 ac.

SHAPE: Roughly rectangular, roughly 470 ft. long by 210 ft. wide.

SLOPES: 90% is in 1-3% slope class; 10% in 3% or more; average 2.93%. Aspect E.

SOILS: Deep, medium textured, moderately permeable. Grant fine sandy loam, good internal drainage.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 20%; III - 80%.

SURFACE DRAINAGE: Good, length of principal waterway 470 ft.

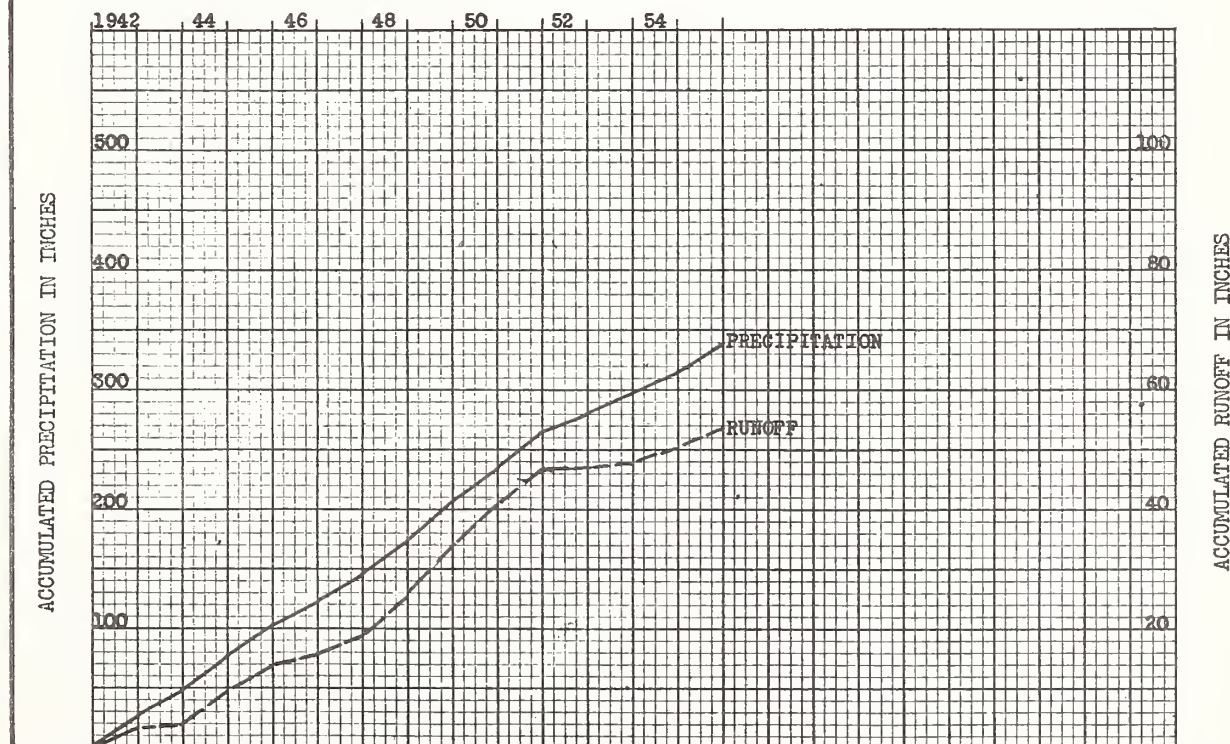
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume, 12 hr. chart; precipitation - one weighing recording and one standard raingage.

WATERSHED CONDITIONS: Continuous wheat 1942 to 51 with a three year sequence of seed bed preparation, of wheatland disc tillage, basin listing and stubble mulching with the wheatland disc used in 1941 preparing for the 1942 crop. During 1952 and 53 tillage for wheat consisted of cultivation with disc and spring tooth harrow as necessary to control weeds. The area was chiseled about 12 inches deep after harvest of the 1953 crop, grass seeded and the area was grassland during 1954 and 55.

GENERALLY REPRESENTS: Rolling areas primarily cropped to wheat in the Red Prairies of Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Cherokee, Oklahoma, Watershed W-1**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P Q	0.14 0	0.89 .02	1.27 .02	4.98 1.01	1.42 T	5.02 1.06	0.51 0	2.55 0	2.71 0	4.42 .57	0.04 0	0.96 0	24.91 2.68
1943 P Q	0 0	.51 0	.45 0	.65 0	6.51 .44	.91 0	.92 0	.86 T	.81 0	2.07 0	.22 0	1.95 0	15.86 .44
1944 P Q	.35 0	1.04 0	1.38 .01	7.24 2.54	2.32 .07	.86 0	3.71 .01	6.60 .54	2.61 0	3.59 1.78	1.97 0	2.16 .21	33.83 5.16
1945 P Q	1.09 0	.26 0	2.32 .79	6.18 2.00	.55 0	3.14 .62	3.09 .63	2.80 .05	5.46 1.46	.19 0	.02 0	.15 0	25.25 5.55
1946 P Q	.56 0	1.49 0	1.35 .03	.83 .03	4.70 .68	2.56 .54	.01 0	2.33 0	.65 0	3.56 T	1.39 0	.74 0	20.17 1.28
1947 P Q	.16 0	.04 0	2.32 .25	5.67 .96	6.36 1.51	.90 0	1.42 0	1.12 0	0 0	.78 0	.90 0	2.32 .03	21.99 2.75
1948 P Q	.02 0	2.61 .98	1.76 .60	.94 .01	.13 0	5.26 1.29	3.75 .14	7.95 1.67	.51 0	3.64 1.71	2.53 .55	.04 0	29.14 6.95
1949 P Q	3.61 T	2.38 1.00	2.19 1.03	1.57 .50	6.68 3.02	6.49 2.82	2.10 T	2.73 0	3.18 .32	1.03 0	0 0	.81 0	32.77 8.69
1950 P Q	.08 0	1.00 .04	.22 0	.70 T	3.96 .22	2.74 .02	9.99 3.17	5.75 2.98	1.30 0	0 0	.47 0	0 0	26.21 6.43
1951 P Q	.61 0	1.50 .03	.56 0	2.21 .08	6.99 1.01	10.03 4.64	2.53 .26	1.09 0	3.43 .05	2.94 0	.71 0	.10 0	32.70 6.07
1952 P Q	.27 0	.84 0	1.49 0	3.87 .25	1.68 0	.45 T	.82 0	3.62 .19	.23 0	0 0	1.57 0	.93 0	15.77 .44
1953 P Q	0 0	.49 0	1.40 0	1.38 0	2.18 .29	2.55 T	3.20 .37	.73 0	.84 0	2.79 .08	.97 0	.81 0	17.34 .74
1954 P Q	0 0	0 0	.07 0	3.65 .21	6.43 1.59	2.91 .71	.36 0	1.41 .02	.34 0	.90 0	0 0	.11 0	16.18 2.53
1955 P Q	.52 0	1.39 0	.04 0	.72 0	9.27 1.25	5.25 1.18	1.62 .18	1.23 0	3.73 *.62	2.16 .17	0 0	0 0	25.93 *3.40
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	.53 0	1.03 .15	1.20 .20	2.90 .54	4.23 .72	3.50 .92	2.43 .34	2.91 .39	1.84 .18	2.00 .31	.77 .04	.79 .02	24.13 3.81
Normal P	.79	.90	1.46	2.89	3.83	3.74	2.12	3.08	2.54	2.23	1.40	.94	25.92

**Notes:** \* Partially Estimated. Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Cherokee, Oklahoma.

LOCATION: Alfalfa Co., Oklahoma; 2 mi. S. W. of Cherokee; Salt Fork of Arkansas River Basin.

AREA: 4.82 ac.

SHAPE: Fan, approximately 530 ft. long by 550 ft. wide.

SLOPES: 92% is in 1-3% slope class; 8% in 3% or more; average 2.86%. Aspect ESE.

SOILS: Deep, medium textured, moderately permeable. Grant fine sandy loam, good internal drainage.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 60%; III - 40%.

SURFACE DRAINAGE: Good, length of principal waterway 630 ft.

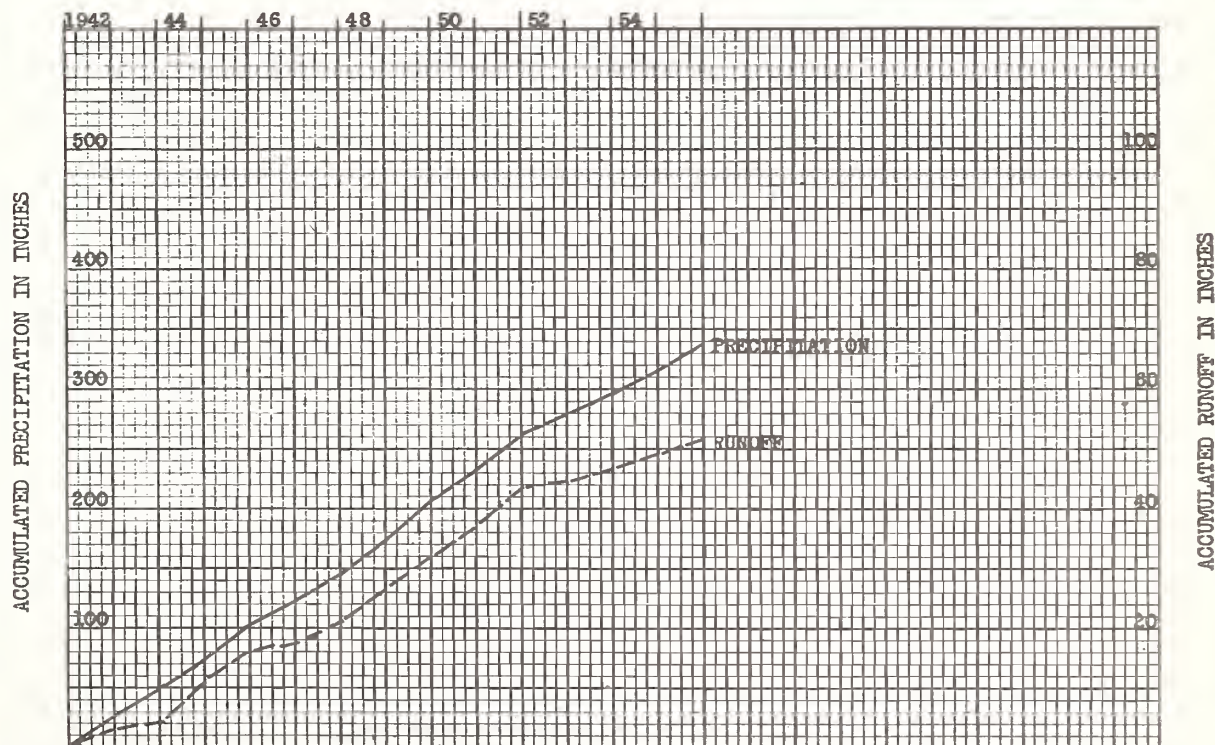
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume, 12 hr. chart; precipitation - one weighing recording and one standard raingage.

WATERSHED CONDITIONS: Continuous wheat 1942-53, with a three year sequence of seed bed preparation, of wheatland disc tillage, basin listing and stubble mulching with the wheatland disc used in 1941 preparing for the 1942 crop. During 1952 and 53 tillage for wheat consisted of cultivation with disc and spring tooth harrow as necessary to control weeds. The area was chiseled about 12 inches deep after harvest of the 1953 crop, alfalfa and grass seeded and the area was grassland during 1954 and 55.

GENERALLY REPRESENTS: Rolling areas primarily cropped to wheat in the Red Prairies of Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Cherokee, Oklahoma, Watershed W-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P	0.14	0.89	1.27	4.98	1.42	5.02	0.51	2.55	2.71	4.42	0.04	0.98	24.93
Q	0	0	0	1.18	.01	1.33	0	0	0	.62	0	0	3.14
1943 P	0	.51	.45	.65	6.51	.91	.92	.86	.81	2.07	.22	1.95	15.86
Q	0	0	0	0	.52	0	0	T	0	0	0	0	.52
1944 P	.35	1.04	1.38	7.24	2.32	.86	3.71	6.60	2.61	3.59	1.97	2.16	33.83
Q	0	0	T	3.16	.04	0	T	.98	0	1.99	0	.18	6.35
1945 P	1.09	.26	2.32	6.18	.55	3.14	3.09	2.80	5.46	.19	.02	.15	25.25
Q	0	0	.80	2.24	0	.68	.68	.05	1.01	0	0	0	5.46
1946 P	.56	1.49	1.35	.83	4.70	2.56	.01	2.33	.65	3.56	1.39	.74	20.17
Q	0	0	.03	.06	.93	.72	0	0	0	0	0	0	1.74
1947 P	.16	.04	2.32	5.67	6.36	.90	1.42	1.12	0	.78	.90	2.32	21.99
Q	0	0	.39	1.06	1.67	0	0	0	0	0	0	.01	3.13
1948 P	.02	2.61	1.76	.94	.13	5.26	3.75	7.95	.51	3.64	2.53	.04	29.14
Q	0	1.03	.64	.01	0	1.43	.01	.86	0	1.58	.49	0	6.05
1949 P	3.61	2.38	2.19	1.57	6.68	6.49	2.10	2.73	3.18	1.03	0	.81	32.77
Q	T	.51	.62	.34	1.68	1.61	0	0	.31	0	0	0	5.07
1950 P	.08	1.00	.22	.70	3.96	2.74	9.99	5.75	1.30	0	.47	0	26.21
Q	0	.02	0	0	.25	.01	2.70	2.64	0	0	0	0	5.62
1951 P	.61	1.50	.56	2.21	6.99	10.05	2.53	1.09	3.43	2.94	.71	.10	32.72
Q	0	.03	0	.08	1.23	4.99	.28	0	.01	0	0	0	6.62
1952 P	.27	.84	1.49	3.87	1.68	.45	.82	3.62	.23	0	1.57	.93	15.77
Q	0	0	0	.32	0	0	0	.33	0	0	0	0	.65
1953 P	0	.49	1.40	1.38	2.18	2.55	3.20	.73	.84	2.79	.97	.81	17.34
Q	0	0	0	.04	.52	.28	.76	0	0	.18	0	0	1.78
1954 P	0	0	.07	3.65	6.43	2.91	.36	1.41	.34	.90	0	.11	16.18
Q	0	0	0	.38	1.66	.67	0	.01	0	0	0	0	2.72
1955 P	.52	1.39	.04	.72	9.27	5.25	1.62	1.23	3.73	2.16	0	0	25.93
Q	0	0	0	0	1.02	1.02	.19	T	.54	.07	0	0	2.84
P													
Q													
P													
Q													
P													
Q													
P													
Q													
Av. P	.53	1.03	1.20	2.90	4.23	3.51	2.43	2.91	1.84	2.00	.77	.79	24.14
Av. Q	0	.11	.18	.63	.68	.91	.33	.35	.13	.32	.04	.01	3.69
Normal P	.79	.90	1.46	2.89	3.83	3.74	2.12	3.08	2.54	2.23	1.40	.94	25.92

Notes: Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Cherokee, Oklahoma.



5-56, revised 2-59

CHEROKEE, OKLAHOMA Watershed W-5

LOCATION: Alfalfa Co., Oklahoma; 2 mi. S. W. of Cherokee; Salt Fork of Arkansas River Basin.

AREA: 8.30 ac., 1942-52;  
8.04 ac., 1953-55.

SHAPE: Roughly rectangular, approximately 825 ft. long by 440 ft. wide.

SLOPES: 5% is in 0-1% slope class; 80% in 1-3% ; 15% in 3% or more; average 2.16%. Aspect SE.

SOILS: Deep, medium textured, moderately permeable. Grant fine sandy loam, good internal drainage.

EROSION: 1 - 15%; 2 - 85%.

LAND CAPABILITY: I - 15%; II - 65%; III - 20%.

SURFACE DRAINAGE: Good, length of principal waterway 830 ft.

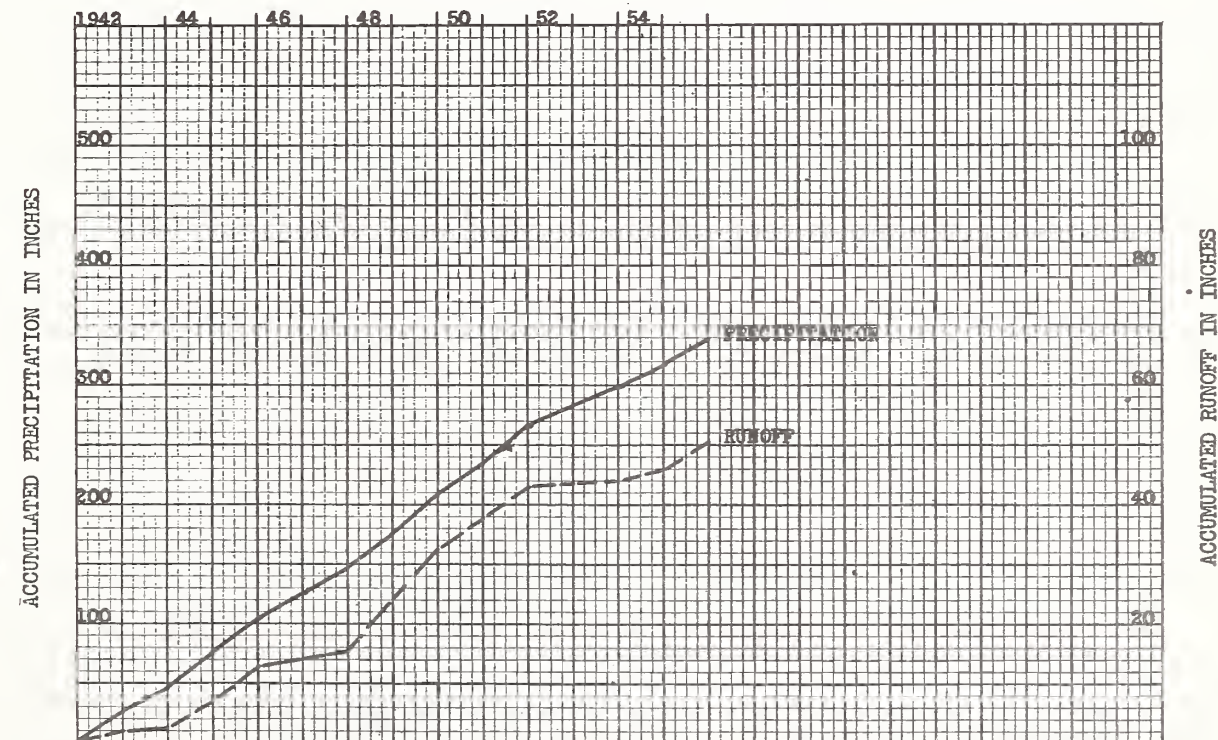
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-4.5 flume, 12 hr. chart; precipitation - one weighing recording, and one standard raingage.

WATERSHED CONDITIONS: Continuous wheat. From 1942 through 51. Seed bed preparation for wheat followed a three year sequence of stubble mulching, wheatland disc tillage and basin listing with stubble mulching in 1941 preparing for the 1942 crop. From 1952 through 55 tillage for wheat consisted of cultivation with disc and spring tooth harrows as necessary to control weeds. The area was chiseled approximately 12 inches deep in 1953 after wheat harvest.

GENERALLY REPRESENTS: Rolling areas primarily cropped to wheat in the Red Prairies of Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

## Cherokee, Oklahoma, Watershed W-3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P Q	0.15 0	0.96 0	1.20 T	5.28 .61	1.51 .01	5.12 .70	0.49 0	2.59 0	2.65 T	4.49 .34	0.04 0	0.95 0	25.43 1.66
1943 P Q	0 0	.49 0	.44 0	.64 0	6.26 .44	.95 0	.93 0	.81 T	.81 0	1.95 0	.22 0	2.01 0	15.51 .44
1944 P Q	.36 0	1.06 0	1.39 T	7.57 2.43	2.37 .05	.97 0	3.52 T	6.46 .53	2.52 0	3.70 1.23	2.07 0	2.23 .08	34.22 4.32
1945 P Q	1.13 0	.32 0	2.44 .70	6.31 1.96	.52 0	3.13 .56	3.10 .60	2.94 .02	5.71 2.18	.22 0	.02 0	.16 0	26.00 6.02
1946 P Q	.56 0	1.58 0	1.49 .04	.84 .04	4.89 .60	2.61 .50	.01 0	2.59 0	.52 0	3.66 0	1.45 0	.80 0	21.00 1.18
1947 P Q	.15 0	.02 0	2.42 .06	5.95 .52	6.58 .82	.90 0	1.65 0	1.46 0	0 0	.76 0	.92 0	2.38 T	23.19 1.40
1948 P Q	.01 0	2.62 .72	1.77 .38	.87 T	.17 0	5.27 .83	4.03 .18	8.12 4.41	.42 0	3.71 1.51	2.76 .80	.04 0	29.79 8.83
1949 P Q	3.63 T	2.54 1.66	2.15 .96	1.87 .55	6.52 2.70	6.72 2.37	2.16 0	2.65 T	3.10 .19	1.12 0	0 0	.81 0	33.27 8.43
1950 P Q	.07 0	.77 .04	.22 0	.65 0	3.72 .35	2.83 .06	9.02 2.74	5.68 2.01	1.27 0	0 0	.54 0	0 0	24.77 5.20
1951 P Q	.61 0	1.48 .03	.51 0	2.15 .06	7.00 .85	9.92 4.49	2.49 .17	1.20 0	3.54 .01	3.05 .01	.71 0	.10 0	32.76 5.62
1952 P Q	.28 0	.86 0	1.46 0	4.06 .38	1.77 0	.30 T	.79 0	3.45 .11	.24 0	0 0	1.69 0	.87 0	15.77 .49
1953 P Q	0 0	.51 0	1.58 0	1.33 0	1.99 .07	2.48 T	3.01 T	.69 0	.72 0	2.61 T	.92 0	.79 0	16.63 .07
1954 P Q	0 0	0 0	.08 0	3.80 .17	6.34 1.16	2.75 .54	.33 0	1.57 .02	.33 0	.90 0	0 0	.11 0	16.21 1.89
1955 P Q	.49 0	1.41 0	.03 0	.69 0	8.75 2.45	5.11 1.83	1.59 T	1.32 .01	3.87 .49	1.95 .36	0 0	0 0	25.21 5.14
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	.53 0	1.04 .18	1.23 .15	3.00 .48	4.17 .68	3.50 .85	2.37 .26	2.97 .51	1.84 .20	2.01 .25	.81 .06	.80 .01	24.27 3.63
Normal P	.79	.90	1.46	2.89	3.83	3.74	2.12	3.08	2.54	2.23	1.40	.94	25.92

Notes: Quality of records: P - good; Q - Good. Normal P based on 40 year record (1915-1955) at Cherokee, Oklahoma.



LOCATION: Alfalfa Co., Oklahoma; 2 mi. S. W. of Cherokee; Salt Fork of Arkansas River Basin.

AREA: 4.35 ac.

SHAPE: Narrow fan, approximately 710 ft. long by 300 ft. wide.

SLOPES: 4% is in 0-1% slope class; 48% in 1-3%; 12% in 3% or more; average 1.95%.

Aspect SE.

SOILS: Deep, medium textured, moderately permeable. Grant fine sandy loam, good internal drainage.

EROSION: 1 - 45%; 2 - 55%.

LAND CAPABILITY: I - 45%; II - 45%; III - 10%.

SURFACE DRAINAGE: Good, length of principal waterway 790 ft.

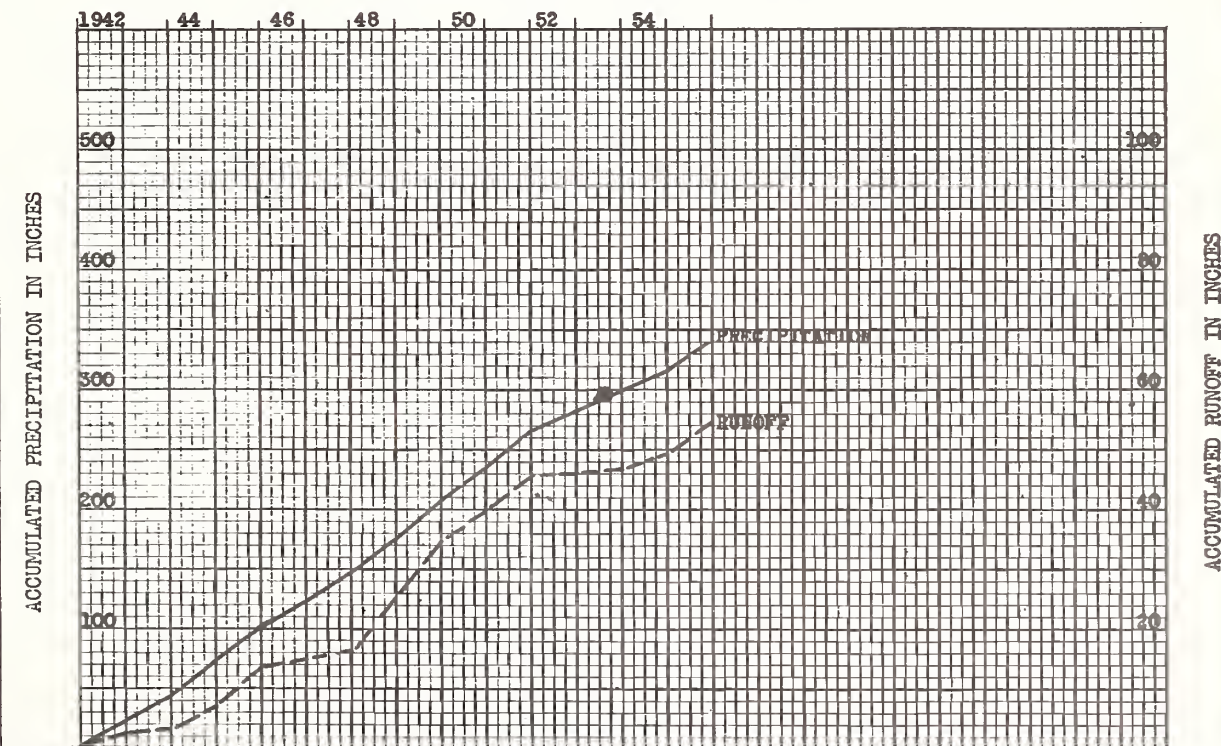
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume, 12 hr. chart; precipitation - one weighing recording and one standard rain gauge.

WATERSHED CONDITIONS: Continuous wheat. From 1942 through 51. Seed bed preparation for wheat followed a three year sequence of stubble mulching, wheatland disc tillage and basin listing with stubble mulching in 1941 preparing for the 1942 crop. From 1952 through 55 tillage for wheat consisted of cultivation with disc and spring tooth harrows as necessary to control weeds. The area was chiseled approximately 12 inches deep in 1953 after wheat harvest.

GENERALLY REPRESENTS: Rolling areas primarily cropped to wheat in the Red Prairies of Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Cherokee, Oklahoma, Watershed No. 1**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P Q	0.15 0	0.96 .02	1.20 0	5.28 .78	1.51 .01	5.12 .76	0.49 0	2.59 0	2.65 .01	4.49 1.07	0.04 0	0.95 0	25.43 2.65
1943 P Q	0 0	.49 0	.44 0	.64 0	6.26 .37	.95 0	.93 0	.81 T	.81 0	1.95 T	.22 0	2.01 0	15.51 .37
1944 P Q	.36 0	1.06 0	1.39 T	7.57 2.52	2.37 .12	.97 0	3.52 T	6.46 .49	2.52 0	3.70 1.42	2.07 0	2.23 .03	34.22 4.58
1945 P Q	1.13 0	.32 0	2.44 .80	6.31 2.19	.52 0	3.13 .53	3.10 .52	2.94 .05	5.71 2.16	.22 0	.02 0	.16 0	26.00 6.25
1946 P Q	.56 0	1.56 0	1.49 .10	.84 .04	4.89 .66	2.61 .47	.01 0	2.59 0	.52 0	3.66 0	1.45 0	.80 0	20.98 1.27
1947 P Q	.15 0	.02 0	2.42 .05	5.95 .30	6.58 .68	.90 0	1.65 0	1.46 0	0 0	.76 0	.92 0	2.38 T	23.19 1.03
1948 P Q	.01 0	2.62 .86	1.77 .45	.87 T	.17 0	5.27 .79	4.03 .21	8.12 4.73	.42 0	3.71 1.65	2.76 .78	.04 0	29.79 9.47
1949 P Q	3.63 T	2.54 1.23	2.15 1.14	1.87 .61	6.52 3.09	6.72 2.98	2.16 0	2.65 .02	3.10 .23	1.12 0	0 0	.81 0	33.27 9.30
1950 P Q	.07 0	.77 .03	.22 0	.65 0	3.72 .36	2.83 .08	9.02 2.59	5.68 1.98	1.27 0	0 0	.54 0	0 0	24.77 5.04
1951 P Q	.61 0	1.48 .03	.51 0	2.15 .07	7.00 .87	9.92 4.73	2.47 .10	1.20 0	3.54 .02	3.05 .01	.71 0	.10 0	32.74 5.83
1952 P Q	.28 0	.86 0	1.46 0	4.06 .37	1.77 0	.38 0	.79 0	3.45 .13	.24 0	0 0	1.69 0	.87 0	15.85 .50
1953 P Q	0 0	.51 0	1.58 0	1.33 T	1.99 .09	2.48 .01	3.01 .01	.69 0	.72 0	2.61 .01	.92 0	.79 0	16.63 .12
1954 P Q	0 0	0 0	.08 0	3.80 .27	6.34 1.48	2.75 .83	.33 0	1.57 0	.33 0	.90 0	0 0	.11 0	16.21 2.58
1955 P Q	.49 0	1.41 0	.03 0	.69 0	8.75 2.80	5.11 1.89	1.59 T	1.32 .02	3.87 .66	1.95 .40	0 0	0 0	25.21 5.77
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	.53 T	1.04 .16	1.23 .18	3.00 .51	4.17 .75	3.51 .93	2.36 .24	2.97 .53	1.84 .22	2.01 .33	.81 .06	.80 T	24.27 3.91
Normal P	.79	.90	1.46	2.89	3.83	3.74	2.12	3.08	2.54	2.23	1.40	.94	25.92

**Notes:** Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Cherokee, Oklahoma.

LOCATION: Alfalfa Co., Oklahoma; 2 mi. S. W. of Cherokee; Salt Fork of Arkansas River Basin.

AREA: 7.85 ac.

SHAPE: Fan, approximately 810 ft. long by 420 ft. wide.

SLOPES: 20% is in 0-1% slope class; 72% in 1-3%; 8% in 3% or more; average 1.52%. Aspect SE.

SOILS: Deep, medium textured, moderately permeable. Grant fine sandy loam, good internal drainage.

EROSION: 1 - 50%; 2 - 50%.

LAND CAPABILITY: I - 50%; II - 25%; III - 25%.

SURFACE DRAINAGE: Good, length of principal waterway 830 ft.

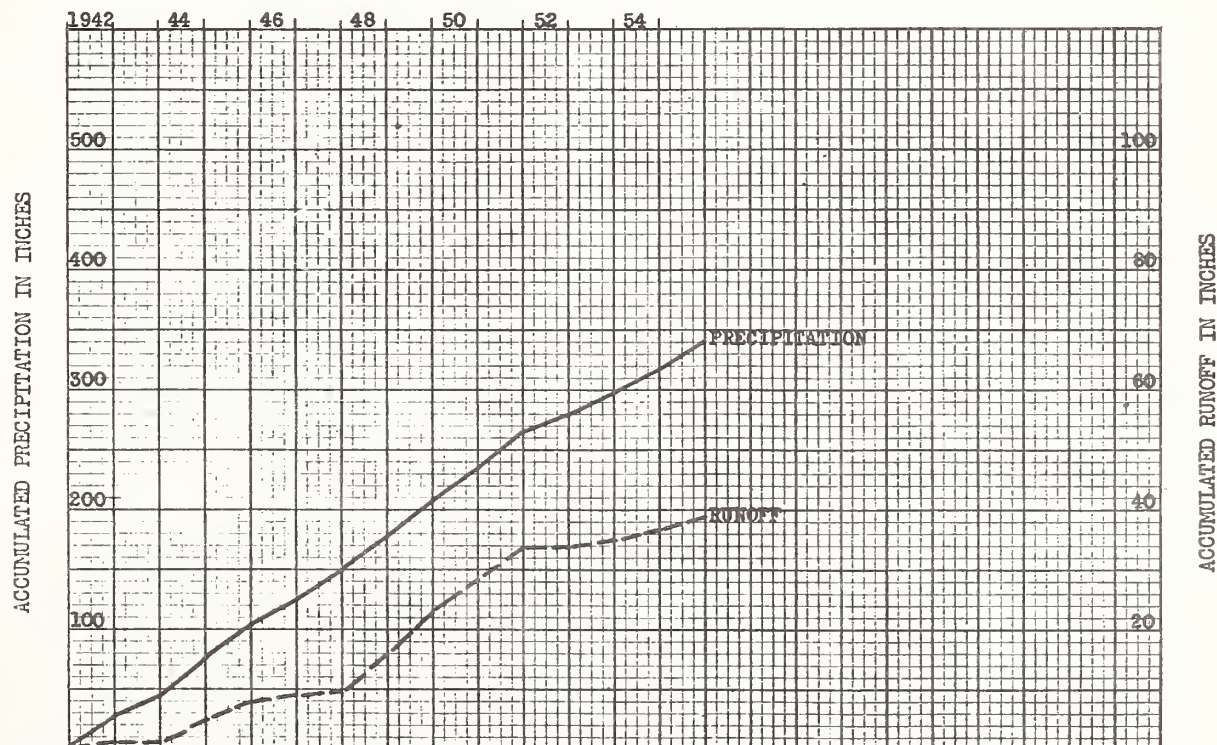
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-4.5 flume, 12 hr. chart; precipitation - one weighing recording and one standard rain gauge.

WATERSHED CONDITIONS: Continuous wheat 1942 to 51 with a three year sequence of seed bed preparation of wheatland disc tillage, basin listing and stubble mulching with the wheatland disc used in 1941 preparing for the 1942 crop. During 1952 and 53 tillage for wheat consisted of cultivation with disc and spring tooth harrow as necessary to control weeds. The area was chiseled about 12 inches deep after harvest of the 1953 crop, alfalfa seeded and the area was alfalfa during 1954 and 55.

GENERALLY REPRESENTS: Rolling areas primarily cropped to wheat in the Red Prairies of Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Cherokee, Oklahoma, Watershed W-5**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P	0.16	1.01	1.18	5.35	1.48	5.09	0.46	2.54	2.73	4.52	0.05	1.13	25.70
Q	0	0	T	.51	T	.27	0	0	0	.10	0	0	.88
1943 P	0	.50	.49	.66	6.11	.95	.94	.89	.80	1.98	.23	2.13	15.68
Q	0	0	0	0	.02	0	0	T	0	0	0	0	.02
1944 P	.36	1.06	1.39	7.57	2.37	.98	3.39	6.24	2.80	3.73	2.09	2.31	34.29
Q	0	0	0	2.15	.04	0	.01	.29	0	1.28	0	.03	3.80
1945 P	1.18	.30	2.45	6.13	.45	3.01	2.94	2.92	5.68	.23	.02	.18	25.19
Q	0	0	.64	1.56	0	.30	.32	.01	.37	0	0	0	3.20
1946 P	.61	1.63	1.49	.77	4.90	2.44	.01	2.60	.42	3.62	1.41	.80	20.70
Q	0	0	.06	T	.27	.17	0	0	0	0	0	0	.50
1947 P	.15	.03	2.50	5.87	6.19	.91	1.57	1.51	0	.80	.94	2.39	23.16
Q	0	0	.04	.41	.78	0	0	T	0	0	0	T	1.23
1948 P	.01	2.69	1.69	.88	.16	5.10	3.85	8.11	.39	3.39	2.59	.04	28.90
Q	0	.66	.46	T	0	.78	.04	2.53	0	1.21	.42	0	6.13
1949 P	3.62	2.18	2.20	1.76	6.31	6.80	2.07	2.68	3.13	1.07	0	.86	32.98
Q	0	.83	.90	.55	2.22	2.59	0	0	.27	0	0	0	7.36
1950 P	.08	.74	.22	.63	3.75	2.83	9.18	5.83	1.33	0	.54	0	25.13
Q	0	0	0	0	.01	.01	2.72	2.22	0	0	0	0	4.96
1951 P	.64	1.45	.53	2.07	6.41	9.79	2.36	1.25	3.44	3.10	.72	.10	31.86
Q	0	.02	0	.03	.80	4.43	.05	0	.01	.02	0	0	5.36
1952 P	.29	.90	1.49	4.00	1.74	.39	.80	3.52	.24	0	1.66	.89	15.92
Q	0	0	0	.16	0	0	0	.02	0	0	0	0	.18
1953 P	0	.51	1.62	1.26	1.98	2.45	3.12	.71	.73	2.55	.90	.78	16.61
Q	0	0	0	T	.29	.09	.46	0	0	.04	0	0	.88
1954 P	0	0	.08	3.82	6.36	2.67	.33	1.69	.30	.93	0	.11	16.29
Q	0	0	0	.26	1.30	.46	0	.02	0	0	0	0	2.04
1955 P	.51	1.41	.04	.72	8.81	4.92	1.57	1.28	3.94	2.05	0	0	25.25
Q	0	0	0	0	.47	.80	.18	T	*.54	.06	0	0	*2.05
P													
Q													
P													
Q													
P													
Q													
P													
Q													
Av. P	.54	1.05	1.24	2.96	4.09	3.45	2.33	2.98	1.85	2.00	.80	.84	24.13
Av. Q	0	.11	.15	.40	.44	.71	.27	.36	.09	.20	.03	T	2.76
Normal P	.79	.90	1.46	2.89	3.83	3.74	2.12	3.08	2.54	2.23	1.40	.94	25.92

**Notes:** \* Partially estimated. Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Cherokee, Oklahoma.



LOCATION: Alfalfa, Co., Oklahoma; 2 mi. S. W. of Cherokee; Salt Fork of Arkansas River Basin.

AREA: 1.75 ac.

SHAPE: Fan, approximately 320 ft. long by 290 ft. wide.

SLOPES: 98% is in 1-3% slope class; 2% in 3% or more; average 2.36%. Aspect SE.

SOILS: Deep, medium textured, moderately permeable. Grant fine sandy loam, good internal drainage.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 90%; III - 10%.

SURFACE DRAINAGE: Good, length of principal waterway 320 ft.

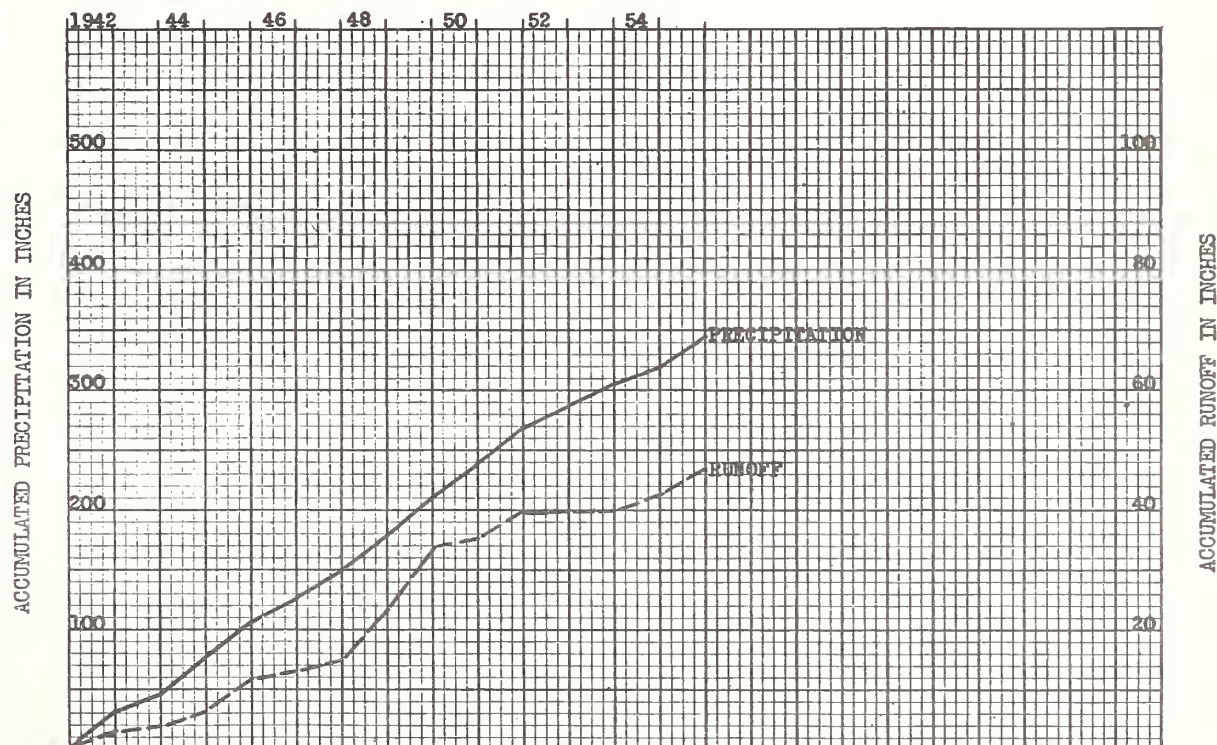
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume, 12 hr. chart; precipitation - one weighing recording and one standard rain gauge.

WATERSHED CONDITIONS: Continuous wheat, from 1942 through 51. Seed bed preparation for wheat followed a three year sequence of basin listing, stubble mulching, and wheatland disc tillage with basin listing in 1941 preparing for the 1942 crop. From 1952-55 tillage for wheat consisted of cultivation with disc and spring tooth harrows as necessary to control weeds. The area was chiseled approximately 12 inches deep in 1953 after wheat harvest.

GENERALLY REPRESENTS: Rolling areas primarily cropped to wheat in the Red Prairies of Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Cherokee, Oklahoma, Watershed W-6

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P Q	0.27 0	0.94 0	1.22 T	5.37 .89	1.52 .02	5.03 .83	0.51 0	2.55 0	2.83 T	4.55 .33	0.04 0	1.07 0	25.90 2.07
1943 P Q	0 0	.51 .49	.49 0	.68 0	6.15 .07	.97 0	.88 0	.80 T	.81 0	1.94 T	.25 0	2.11 0	15.59 .56
1944 P Q	.39 0	1.04 0	1.34 .02	7.48 2.97	2.35 .07	.92 0	3.34 T	6.48 .07	2.54 0	3.75 .04	2.01 0	2.14 .04	33.78 3.21
1945 P Q	1.08 0	.30 0	2.65 .84	6.49 1.95	.52 0	3.22 .61	3.10 .45	2.98 .10	5.81 1.29	.23 0	.02 0	.18 0	26.58 5.24
1946 P Q	.53 0	1.53 0	1.47 .07	.73 T	5.01 .69	2.48 .38	.01 0	2.65 0	.40 0	3.66 T	1.54 0	.75 0	20.76 1.14
1947 P Q	.14 0	.02 0	2.32 .15	5.86 .54	6.56 1.21	.91 T	1.60 0	1.45 T	0 0	.83 0	.94 0	2.58 .01	23.21 1.91
1948 P Q	.03 0	2.59 .77	1.80 .51	.89 .01	.17 0	5.35 .96	3.87 .14	8.11 3.64	.39 0	3.60 1.59	2.79 .65	.04 0	29.63 8.27
1949 P Q	3.75 0	2.50 1.10	2.15 1.15	1.86 .66	6.53 2.78	6.80 3.93	2.07 0	2.56 0	3.27 .86	1.08 0	0 0	.87 0	33.44 10.48
1950 P Q	.08 0	.84 0	.22 0	.86 0	3.89 .10	2.72 .05	8.81 .44	5.95 1.05	1.27 0	0 0	.53 0	0 0	25.17 1.64
1951 P Q	.64 0	1.46 .01	.53 0	2.29 .03	7.19 .75	10.09 4.36	2.41 T	1.21 0	3.46 T	3.12 0	.73 0	.10 0	33.23 5.15
1952 P Q	.28 0	.92 0	1.44 0	4.05 .16	1.73 0	.40 0	.82 0	3.68 .12	.27 0	0 0	1.68 0	.91 0	16.18 .28
1953 P Q	0 0	.50 0	1.53 0	1.32 0	1.98 0	2.80 .01	3.15 T	.68 0	.79 0	2.70 .01	.94 0	.81 0	17.20 .02
1954 P Q	0 0	0 0	.10 0	3.90 .20	6.51 1.27	2.76 .61	.40 0	1.75 .03	.33 0	.91 0	0 0	.11 0	16.77 2.11
1955 P Q	.54 0	1.44 0	.04 0	.73 0	8.62 1.78	5.05 1.56	1.54 0	1.32 T	3.99 .80	2.11 .23	0 0	0 0	25.38 4.37
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	.55 0	1.04 .17	1.24 .20	3.04 .53	4.20 .62	3.54 .95	2.32 .07	3.01 .36	1.87 .21	2.03 .16	.82 .05	.83 T	24.49 3.32
Normal P	.79	.90	1.46	2.89	3.83	3.74	2.12	3.08	2.54	2.23	1.40	.94	25.92

Notes: Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Cherokee, Oklahoma.



LOCATION: Alfalfa Co., Oklahoma; 2 mi. S. W. of Cherokee; Salt Fork of Arkansas River Basin.

AREA: 1.99 ac.

SHAPE: Fan, approximately 380 ft. long by 300 ft. wide.

SLOPES: 95% is in 1-3% slope class; 5% in 3% or more; average 2.14%. Aspect SE.

SOILS: Deep, medium textured, moderately permeable. Grant fine sandy loam, good internal drainage.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good, length of principal waterway 380 ft.

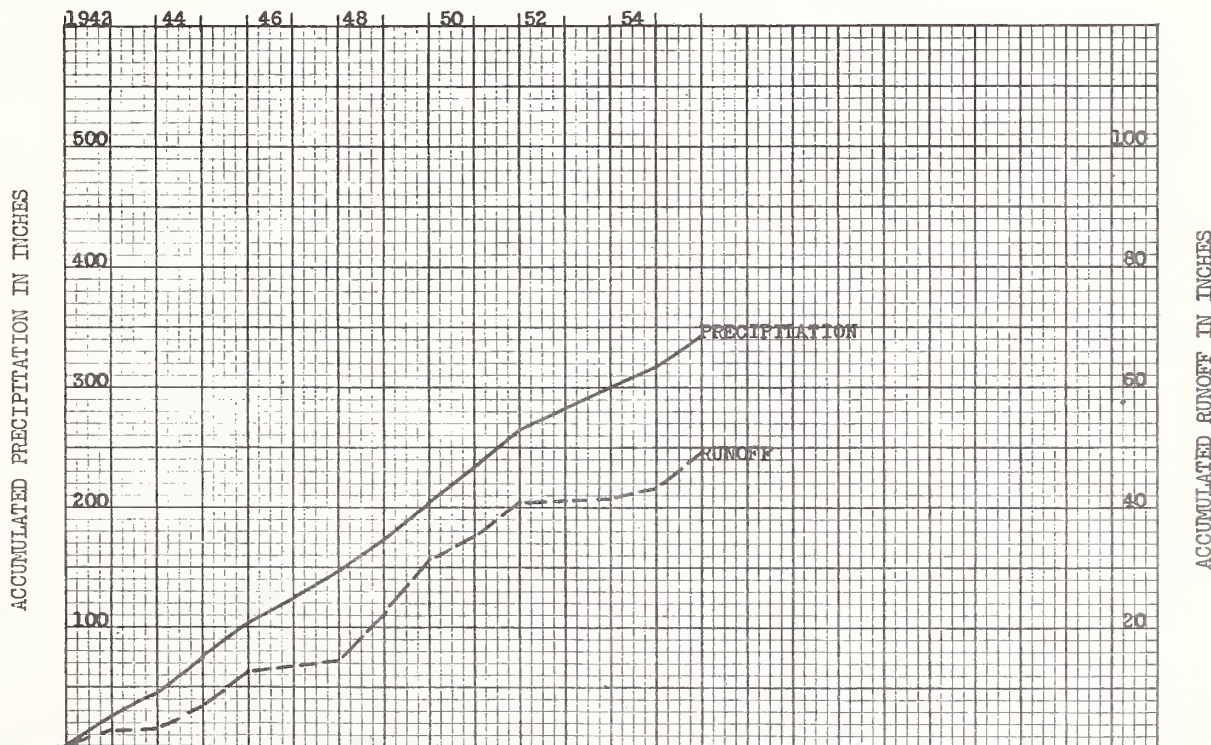
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume, 12 hr. chart; precipitation - one weighing recording and one standard raingage.

WATERSHED CONDITIONS: Continuous wheat, from 1942 through 51. Seed bed preparation for wheat followed a three year sequence of stubble mulching, wheatland disc tillage and basin listing with stubble mulching in 1941 preparing for the 1942 crop. From 1952 through 55 tillage for wheat consisted of cultivation with disc and spring tooth harrows as necessary to control weeds. The area was chiseled approximately 12 inches deep in 1953 after wheat harvest.

GENERALLY REPRESENTS: Rolling areas primarily cropped to wheat in the Red Prairies of Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Cherokee, Oklahoma, Watershed W-7

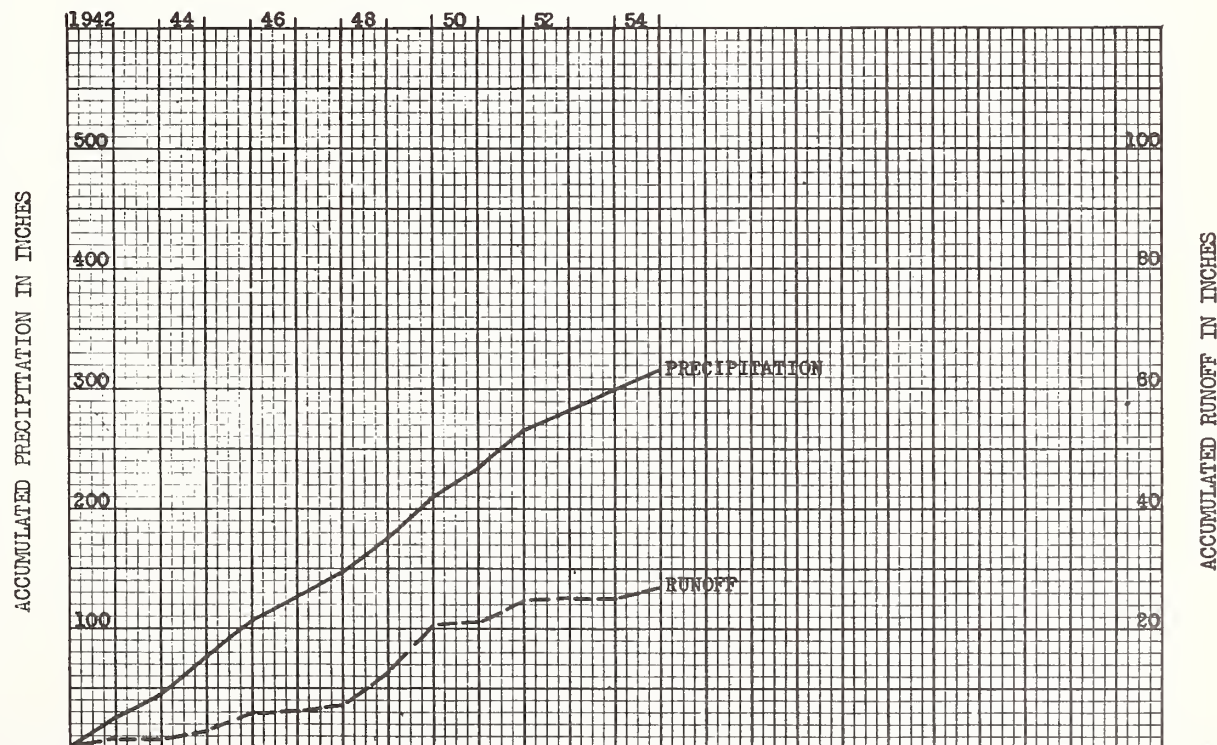
Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P Q	0.20 0	0.97 0	1.23 .01	5.38 .84	1.60 .01	5.21 .67	0.55 0	2.60 0	2.75 .01	4.52 .80	0.05 0	1.04 0	26.10 2.34
1943 P Q	0 0	.52 0	.47 0	.72 0	5.95 .21	.94 0	.91 0	.94 0	.82 0	1.98 T	.22 T	1.99 0	15.46 .21
1944 P Q	.40 0	1.04 0	1.36 T	7.70 2.69	2.33 .04	1.00 0	3.27 T	6.26 .27	2.56 0	3.64 .72	2.08 0	2.32 .08	33.96 3.80
1945 P Q	1.16 0	.32 0	2.61 .90	6.41 2.52	.48 0	3.09 .65	2.77 .34	2.92 .13	5.63 1.24	.21 0	.02 0	.19 0	25.81 5.78
1946 P Q	.55 0	1.53 0	1.43 .07	.80 T	5.06 .70	2.39 .30	.03 0	2.75 T	.33 0	3.69 0	1.44 0	.75 0	20.75 1.07
1947 P Q	.15 0	.03 0	2.52 .07	5.62 .19	6.50 .64	.87 0	1.56 0	1.69 0	0 0	.84 0	.96 0	2.55 0	23.29 .90
1948 P Q	.02 0	2.66 .65	1.69 .36	.91 T	.16 0	5.20 .62	3.82 .06	8.14 4.50	.37 0	3.32 1.55	2.64 .38	.04 0	28.97 8.12
1949 P Q	3.54 0	2.48 .72	2.31 .97	1.74 .63	6.36 2.46	6.99 3.30	2.04 0	2.47 0	3.18 .01	1.06 0	0 0	.84 0	33.01 8.09
1950 P Q	.08 0	.77 0	.23 0	.64 0	3.80 .02	2.89 .02	8.80 1.68	6.00 2.95	1.31 0	0 0	.55 0	0 0	25.07 4.67
1951 P Q	.61 0	1.45 .01	.54 0	2.22 .03	6.95 .86	9.55 4.71	2.39 .05	1.21 0	3.50 T	3.11 0	.72 0	.10 0	32.35 5.66
1952 P Q	.28 0	.91 0	1.47 0	4.00 .26	1.72 0	.43 0	.85 0	3.80 .12	.25 0	0 0	1.63 0	.91 0	16.25 .38
1953 P Q	0 0	.52 0	1.67 0	1.30 0	2.06 .01	2.76 .01	3.51 .01	.74 0	.69 0	2.59 0	.97 0	.82 0	17.63 .03
1954 P Q	0 0	0 0	.09 0	3.85 .12	6.47 1.31	2.91 .50	.36 0	1.92 T	.35 0	.94 0	0 0	.11 0	17.00 1.93
1955 P Q	.50 0	1.47 0	.05 0	.77 0	8.88 2.94	4.98 1.75	1.71 .01	1.31 0	4.41 .99	2.26 *.36	0 0	0 0	26.34 *6.05
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	.54 0	1.05 .10	1.26 .17	3.00 .52	4.17 .66	3.52 .90	2.33 .15	3.05 .57	1.87 .16	2.01 .24	.81 .03	.83 .01	24.44 3.51
Normal P	.79	.90	1.46	2.89	3.83	3.74	2.12	3.08	2.54	2.23	1.40	.94	25.92

Notes: \* Partially estimated. Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Cherokee, Oklahoma.

5-56

CHEROKEE, OKLAHOMA Watershed W-8LOCATION: Alfalfa Co., Oklahoma; 2 mi. S. W. of Cherokee; Salt Fork of Arkansas River Basin.AREA: 4.72 ac.SHAPE: Fan, approximately 540 ft. long by 380 ft. wide.SLOPES: 93% is in 1-3% slope class; 7% in 3% or more; average 1.80%. Aspect SE.SOILS: Deep, medium textured, moderately permeable. Grant fine sandy loam, good internal drainage.EROSION: 1 - 70%; 2 - 30%.LAND CAPABILITY: I - 45%; II - 55%.SURFACE DRAINAGE: Good, length of principal waterway 590 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - type H-3 flume, 12 hr. chart; precipitation - one weighing recording and one standard raingage.WATERSHED CONDITIONS: Continuous wheat, from 1942 through 51. Seed bed preparation for wheat followed a three year sequence of basin listing, stubble mulching, and wheatland disc tillage with basin listing in 1941 preparing for the 1942 crop. From 1952-55 tillage for wheat consisted of cultivation with disc and spring tooth harrows as necessary to control weeds. The area was chiseled approximately 12 inches deep in 1953 after wheat harvest.GENERALLY REPRESENTS: Rolling areas primarily cropped to wheat in the Red Prairies of Oklahoma, Kansas, and Texas.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Cherokee, Oklahoma, Watershed W-8**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P Q				4.75 1.13	2.49 .02	4.40 .16	0.98 0	3.39 0	1.94 T	8.00 .12	0.68 0	0.49 0	27.12 1.43
1942 P Q	0.20 0	0.97 0	1.23 T	5.38 .66	1.60 T	5.21 .28	.55 0	2.60 0	2.75 0	4.52 .14	.05 0	1.04 0	26.10 1.08
1943 P Q	0 0	.52 0	.47 0	.72 0	5.95 T	.94 0	.91 0	.94 0	.82 0	1.98 0	.22 0	1.99 0	15.46 T
1944 P Q	.40 0	1.04 0	1.36 0	7.70 1.60	2.33 .01	1.00 0	3.27 T	6.26 .05	2.56 0	3.64 T	2.08 0	2.32 T	33.96 1.66
1945 P Q	1.16 0	.32 0	2.61 .54	6.41 1.49	.48 0	3.09 .25	2.77 .22	2.92 T	5.63 .12	.21 0	.02 0	.19 0	25.81 2.62
1946 P Q	.55 0	1.53 0	1.43 .01	.80 T	5.06 .16	2.39 .08	.03 0	2.75 0	.33 0	3.69 0	1.44 0	.75 0	20.75 .25
1947 P Q	.15 0	.03 0	2.52 .02	5.62 .21	6.50 .62	.87 0	1.56 0	1.69 0	0 0	.84 0	.96 0	2.55 0	23.29 .85
1948 P Q	.02 0	2.66 .44	1.69 .34	.91 T	.16 0	5.20 .57	3.82 .06	8.14 2.62	.37 0	3.32 1.21	2.64 .40	.04 0	28.97 5.64
1949 P Q	3.54 0	2.48 .74	2.31 .96	1.74 .57	6.36 2.51	6.91 2.64	2.04 T	2.47 0	3.18 .55	1.06 0	0 0	.84 0	32.93 7.97
1950 P Q	.08 0	.77 0	.23 0	.64 0	3.80 .02	2.89 .02	8.80 .17	6.00 .43	1.31 0	0 0	.55 0	0 0	25.07 .64
1951 P Q	.61 0	1.45 .01	.54 0	2.22 .02	6.95 .58	9.55 3.07	2.39 .07	1.21 0	3.50 0	3.11 T	.72 0	.10 0	32.35 3.75
1952 P Q	.28 0	.91 0	1.47 0	4.00 .10	1.72 0	.43 0	.85 0	3.80 .01	.25 0	0 0	1.63 0	.91 0	16.25 .11
1953 P Q	0 0	.52 0	1.67 0	1.30 0	2.06 T	2.76 0	3.51 T	.74 0	.69 0	2.59 0	.97 0	.82 0	17.63 T
1954 P Q	0 0	0 0	.09 0	3.85 .35	6.47 1.60	2.91 .33	.36 0	1.92 0	.35 0	.94 0	0 0	.11 0	17.00 2.28
1955 P Q	.50 0	1.47 0	.05 0	.77 0	8.88 1.61	4.98 1.12	# #						16.65 2.73
P Q													
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	.54 0	1.02 .09	1.36 .14	3.18 .38	3.80 .42	3.40 .56	2.37 .04	3.19 .24	1.67 .05	1.99 .10	.87 .03	.90 T	24.29 2.05
Normal P	.79	.90	1.46	2.89	3.83	3.74	2.12	3.08	2.54	2.23	1.40	.94	25.92

**Notes:** # Station Discontinued July 1, 1955. \*\* Does not include the part year amounts for 1941 and 1955. Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Cherokee, Oklahoma.



LOCATION: Alfalfa Co., Oklahoma; 2 mi. S. W. of Cherokee; Salt Fork of Arkansas River Basin.

AREA: 8.50 ac.

SHAPE: Fan, approximately 735 ft. long by 500 ft. wide.

SLOPES: 10% is in 0-1% slope class; 80% in 1-3%; 10% in 3% or more; average 1.89%. Aspect SE.

SOILS: Deep, medium textured, moderately permeable. Grant fine sandy loam, good internal drainage.

EROSION: 1 - 85%; 2-15%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good, length of principal waterway 820 ft.

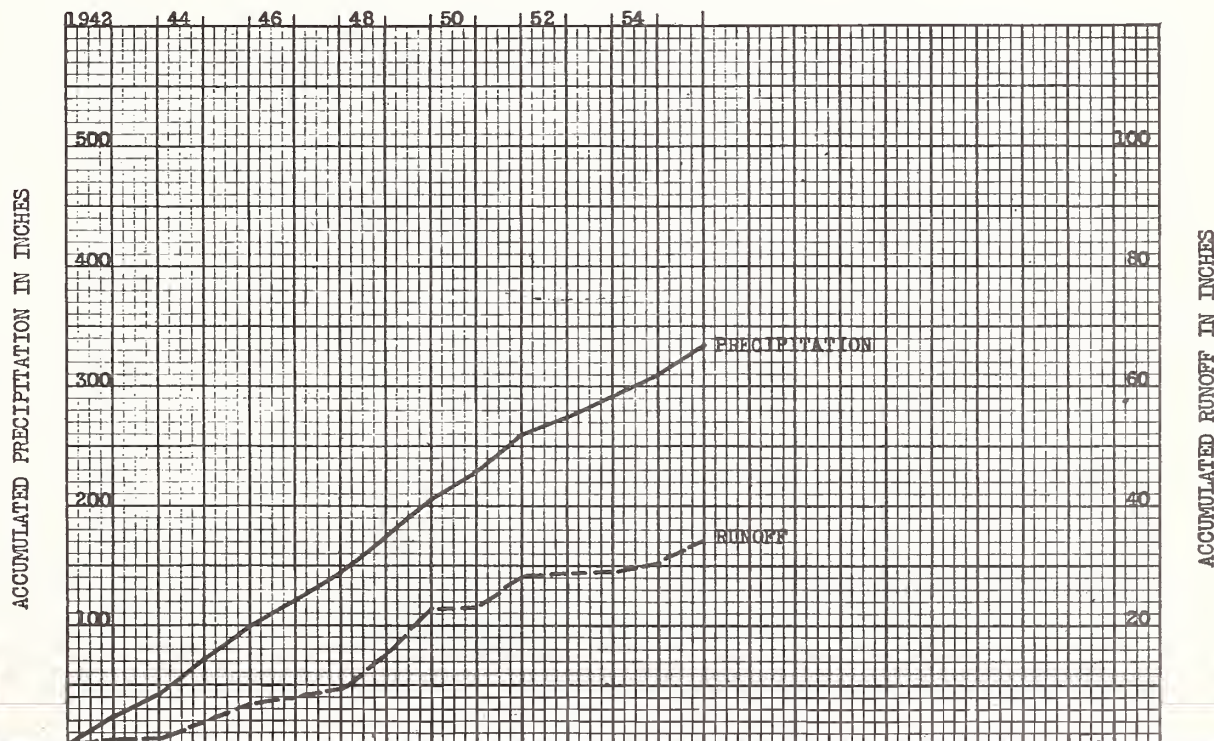
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-4.5 flume, 12 hr. chart; precipitation - one weighing recording and one standard raingauge.

WATERSHED CONDITIONS: Continuous wheat, from 1942 through 51. Seed bed preparation for wheat followed a three year sequence of basin listing, stubble mulching, and wheatland disc tillage with basin listing in 1941 preparing for the 1942 crop. From 1952-55 tillage for wheat consisted of cultivation with disc and spring tooth harrows as necessary to control weeds. The area was chiseled approximately 12 inches deep in 1953 after wheat harvest.

GENERALLY REPRESENTS: Rolling areas primarily cropped to wheat in the Red Prairies of Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Cherokee, Oklahoma, Watershed W-9

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P Q	0.28 0	0.93 0	1.22 T	5.39 .64	1.63 T	5.25 .56	0.56 0	2.58 0	2.69 0	4.43 .18	0.05 0	1.01 0	26.02 1.38
1943 P Q	0 0	.50 0	.46 0	.68 0	5.74 .04	.94 0	.93 T	.93 T	.81 T	1.98 T	.22 0	1.99 0	15.18 .04
1944 P Q	.41 0	1.03 0	1.37 0	7.28 2.33	2.34 T	.99 0	3.30 T	6.00 .16	2.55 T	3.70 .08	2.01 0	2.13 .02	33.11 2.59
1945 P Q	1.14 0	.25 0	2.68 .66	6.32 1.27	.46 0	3.00 .36	2.60 .20	2.82 .02	5.33 .44	.21 0	.02 0	.19 0	25.02 2.95
1946 P Q	.51 0	1.57 0	1.44 .03	.79 .01	4.91 .53	2.41 .24	.05 0	2.74 .14	.32 0	3.67 .14	1.35 0	.78 0	20.54 1.09
1947 P Q	.14 0	.04 0	2.51 .14	5.49 .46	6.46 1.02	.86 0	1.50 0	1.72 T	0 0	.82 0	.94 0	2.45 .05	22.93 1.67
1948 P Q	.02 0	2.59 .60	1.78 .37	.87 T	.14 0	5.04 .71	3.73 .31	8.16 2.23	.37 0	3.34 1.34	2.54 .46	.04 0	28.62 6.02
1949 P Q	3.51 0	2.45 .56	2.24 .94	1.69 .54	6.38 2.34	7.05 2.37	1.98 0	2.48 0	3.15 .53	1.01 0	0 0	.84 0	32.78 7.28
1950 P Q	.08 0	.71 0	.23 0	.60 0	3.73 .04	2.95 .04	8.52 .09	5.87 .48	1.33 0	0 0	.55 0	0 0	24.57 .65
1951 P Q	.66 0	1.50 T	.52 0	2.19 .01	6.46 .55	9.18 4.10	2.49 .12	1.23 0	3.31 T	2.85 .02	.69 0	.10 0	31.18 4.80
1952 P Q	.27 0	.84 0	1.51 0	3.88 .09	1.60 0	.45 0	.73 0	3.55 .01	.25 0	0 0	1.62 0	.91 0	15.61 .10
1953 P Q	0 0	.52 0	1.60 0	1.23 0	2.12 T	2.74 .01	3.30 .04	.77 0	.70 0	2.44 0	.93 0	.83 0	17.18 .05
1954 P Q	0 0	0 0	.08 0	3.69 .08	6.57 1.38	2.69 .45	.40 0	1.90 T	.30 0	.93 0	0 0	.12 0	16.68 1.91
1955 P Q	.49 0	1.40 0	.03 0	.74 0	8.45 1.48	4.77 1.34	1.86 0	1.21 T	3.91 .74	2.19 .24	0 0	0 0	25.05 3.80
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	.54 0	1.02 .08	1.26 .15	2.92 .39	4.07 .53	3.45 .73	2.28 .05	3.00 .22	1.79 .12	1.97 .14	.78 .03	.81 T	23.89 2.44
Normal P	.79	.90	1.46	2.89	3.83	3.74	2.12	3.08	2.54	2.23	1.40	.94	25.92

Notes: Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Cherokee, Oklahoma.



**LOCATION:** Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

**AREA:** 35.4 ac. 1932-39;  
33.4 ac. 1940-53.

**SHAPE:** Roughly rectangular, approximately 3800 ft. long by  
575 ft. wide.

**SLOPES:** 55% is in 3-5% class; 45% in 5-8%. Aspect W.

**SOILS:** 27% Zanies fine sandy loam; 63% Chickasha fine sandy loam; 10% Kirkland fine sandy loam; or 55% deep, medium textured slowly permeable soils; 40% shallow, medium texture slowly permeable soil; 5% deep, medium textured, moderately permeable soil. Internal drainage poor.

**EROSION:** 2 - 5%; 3 - 95%.

**LAND CAPABILITY:** II - 5%; III - 55%; VII - 40%.

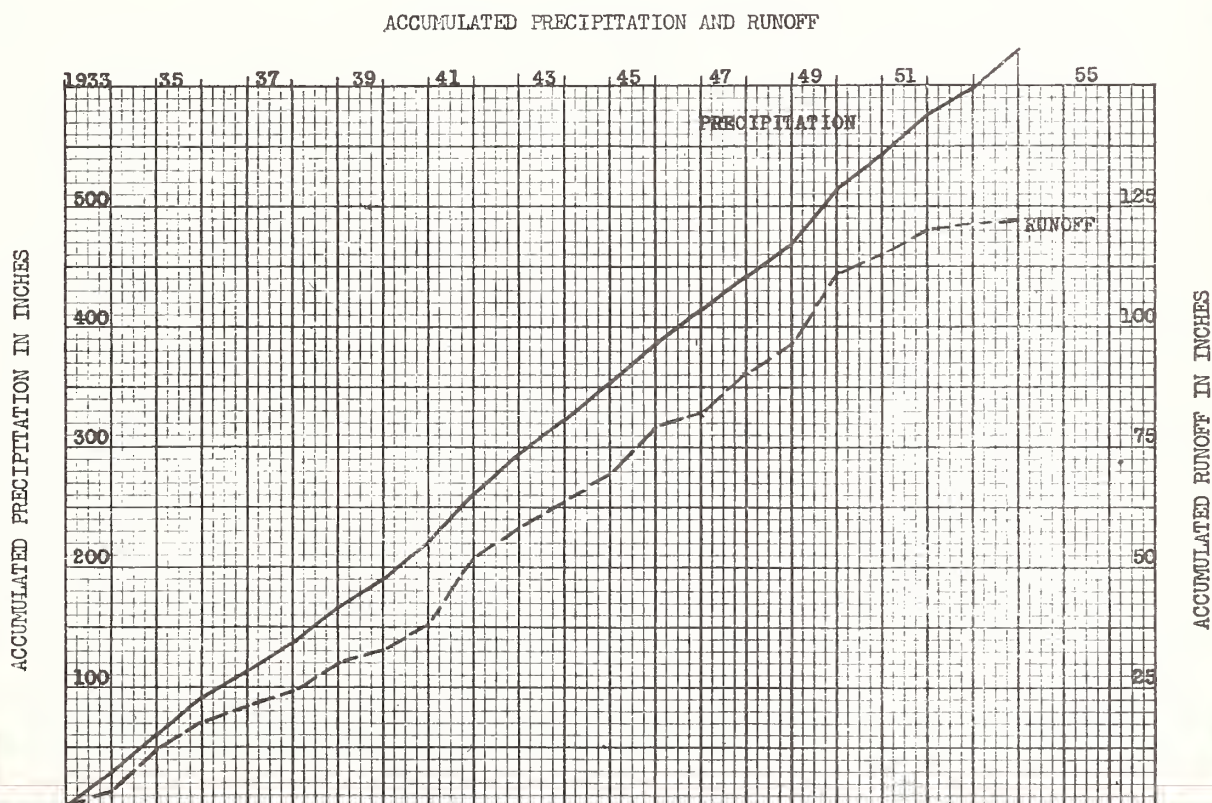
**SURFACE DRAINAGE:** Good, drainage from a series of 8 graded terraces, ranging in length from 1125 ft. to 2885 ft. Sodded terrace outlet ditch.

**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - concrete 3 ft. Parshall flume, 12 hr. chart; precipitation - one weighing recording raingauge 1931-37, three recording gages 1938-53.

**WATERSHED CONDITIONS:** A terraced cultivated area farmed to a three year rotation of oats, cotton, corn or darso 1931-46, starting with cotton in the area in 1931. Cotton followed by winter cover of wheat, oats followed by cowpeas for green manure. Kaffir and vetch were grown 1947 and 1948. A four year rotation; 1st year, oats with biennial sweet clover; 2nd year grazed biennial sweet clover followed with vetch; 3rd year cotton; 4th year, darso was started with oats and sweet clover in 1949. This rotation was continued through 1953.

**GENERALLY REPRESENTS:** Cultivated terraced areas in the Texas Oklahoma Cross Timbers with a two of three years in row crop 1931-46, and two of four years in row crop 1949-53.



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Guthrie, Oklahoma, Watershed 1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932 P Q	4.46 1.19	1.51 .03	0.22 0	1.33 0	4.47 1.47	9.34 NR	2.24 .95	3.85 NR	1.49 0	3.18 .30	0.10 0	4.01 T	36.20 13.94
1933 P Q	.12 0	2.43 0	3.54 1.27	2.35 .39	2.83 .89	.05 0	1.87 0	5.49 .11	6.49 .25	1.84 .07	1.18 0	1.36 0	29.55 2.98
1934 P Q	1.60 0	1.17 0	1.18 0	1.45 0	3.78 .94	2.56 .58	0 0	6.95 2.24	9.49 5.12	1.27 0	3.48 .51	.75 0	33.68 9.39
1935 P Q	.56 0	.87 0	4.32 .88	2.52 .04	4.15 .38	5.22 2.54	.75 0	2.88 .33	3.37 1.18	2.63 0	1.89 .14	1.30 .11	30.46 5.60
1936 P Q	.09 0	.60 0	0 0	.99 .09	5.23 1.20	1.50 .41	.22 0	.26 0	8.31 2.03	1.94 .04	0 0	.62 0	19.76 3.77
1937 P Q	.50 0	.03 0	1.90 T	3.49 1.02	1.04 0	4.33 .47	1.17 0	5.07 1.60	1.47 0	1.75 0	1.49 0	1.08 0	23.32 3.09
1938 P Q	.36 0	2.82 .12	4.90 .87	1.81 0	5.16 1.65	4.11 1.01	3.78 .80	1.38 .15	3.36 .78	.59 0	1.91 0	.27 0	30.45 5.38
1939 P Q	3.25 .05	.26 0	1.19 0	1.08 .03	4.03 .75	3.80 .23	2.11 .24	4.56 1.11	.16 0	.93 0	.53 0	.68 0	22.58 2.41
1940 P Q	.35 0	2.63 0	.04 0	4.57 .30	4.11 1.18	3.41 .80	2.83 .45	3.02 .50	2.38 .04	1.24 0	5.34 1.89	2.12 .14	32.04 5.30
1941 P Q	.56 .06	1.86 0	.36 0	4.25 .23	5.92 2.58	3.72 1.24	.41 0	2.71 .05	9.60 5.31	8.08 3.71	1.18 .09	1.05 .09	39.70 13.36
1942 P Q	.15 0	1.27 .04	.56 0	9.09 3.29	1.54 .42	5.73 .30	.14 0	4.98 .46	6.38 1.90	2.39 .26	.49 0	2.01 .18	34.73 6.85
1943 P Q	0 0	.61 0	1.12 0	1.84 0	10.52 4.88	2.29 .51	.26 0	.26 0	1.38 0	3.97 .76	.23 0	3.33 .11	25.81 6.26
1944 P Q	1.17 .07	1.20 .09	2.84 .52	4.07 .98	3.93 1.24	2.25 .48	2.44 0	1.77 0	3.31 .30	4.14 1.39	1.74 .01	2.02 .34	30.88 5.42
1945 P Q	.98 0	2.21 .09	1.98 .28	3.99 .75	.80 0	10.54 5.16	2.39 .25	.89 0	8.62 2.42	.76 0	0 0	.05 0	33.21 8.95
1946 P Q	2.59 .10	1.66 .11	2.16 .04	2.57 .06	4.49 .97	3.13 .62	0 0	2.48 .38	.61 0	2.67 .37	4.32 .99	.93 0	27.61 3.64
1947 P Q	.43 0	0 0	.46 0	10.99 5.77	7.08 2.33	.45 0	2.96 .08	.04 0	1.58 0	.97 0	1.34 0	2.08 0	28.38 8.18
1948 P Q	.04 0	2.96 0	2.18 .24	3.59 1.76	3.09 .02	7.68 3.74	1.23 0	2.12 0	0 0	1.24 0	2.00 0	.13 0	26.26 5.76
1949 P Q	5.23 .44	1.01 0	1.37 0	1.31 0	13.15 7.90	8.83 3.64	3.99 1.22	1.47 0	4.37 .83	3.20 .05	0 0	1.10 .01	45.03 14.09
1950 P Q	1.09 0	1.27 .01	.22 0	.97 0	5.23 .15	5.03 1.73	10.36 2.65	1.54 0	1.36 0	.38 0	.65 0	.03 0	28.13 4.54
1951 P Q	.99 0	2.24 .13	.98 T	3.18 .19	5.28 1.17	5.69 1.14	4.12 .37	2.89 1.32	4.57 .77	2.99 .02	1.89 .06	.04 0	34.86 5.17
Av. P Av. Q				Continued on page			35.1-2a						
Normal P													

Notes:

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Guthrie, Oklahoma, Watershed 1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1952 P	.72	1.38	2.53	2.56	3.65	1.02	2.69	2.53	.35	0	1.64	.96	20.03
Q	0	0	.17	T	.58	.03	.03	.68	0	0	0	0	1.49
1953 P	.60	1.32	4.12	2.88	1.97	1.65	4.82	5.79	1.76	5.84	1.12	#.97	32.84
Q	0	.01	.49	0	0	0	0	0	0	0	0	#0	.50
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** Av. P	1.02	1.42	1.81	3.31	4.62	3.95	2.31	2.81	3.76	2.32	1.54	1.09	29.96
** Av. Q	.03	.03	.23	.71	1.39	1.17	.29	.43	1.00	.32	.18	.05	5.83
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

**Notes:** # Station discontinued December 31, 1953. \*\* Does not include the part year amount for 1932.  
 NR - No Record. ✓ Incomplete record and not used in average. Quality of records: P - fair, Q - good. Normal P based on 40 year record (1915-1955) at Guthrie, Oklahoma.





5-56

GUTHRIE, OKLAHOMA Watershed 2 (Plot 13)

LOCATION: Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 3.21 ac.

SHAPE: Roughly rectangular, approximately 690 ft. long by 220 ft. wide.

SLOPES: 100% is in 3-7% slope class; average slope 5.13%. Aspect WNW.

SOILS: 21% Zanies fine sandy loam; 33% Chickasha fine sandy loam; 46% Stephenville fine sandy loam; all shallow, medium texture slowly permeable soil. Internal drainage poor.

EROSION: 3 - 100%.

LAND CAPABILITY: VII - 100%.

SURFACE DRAINAGE: Good, length of principal waterway 690 ft.

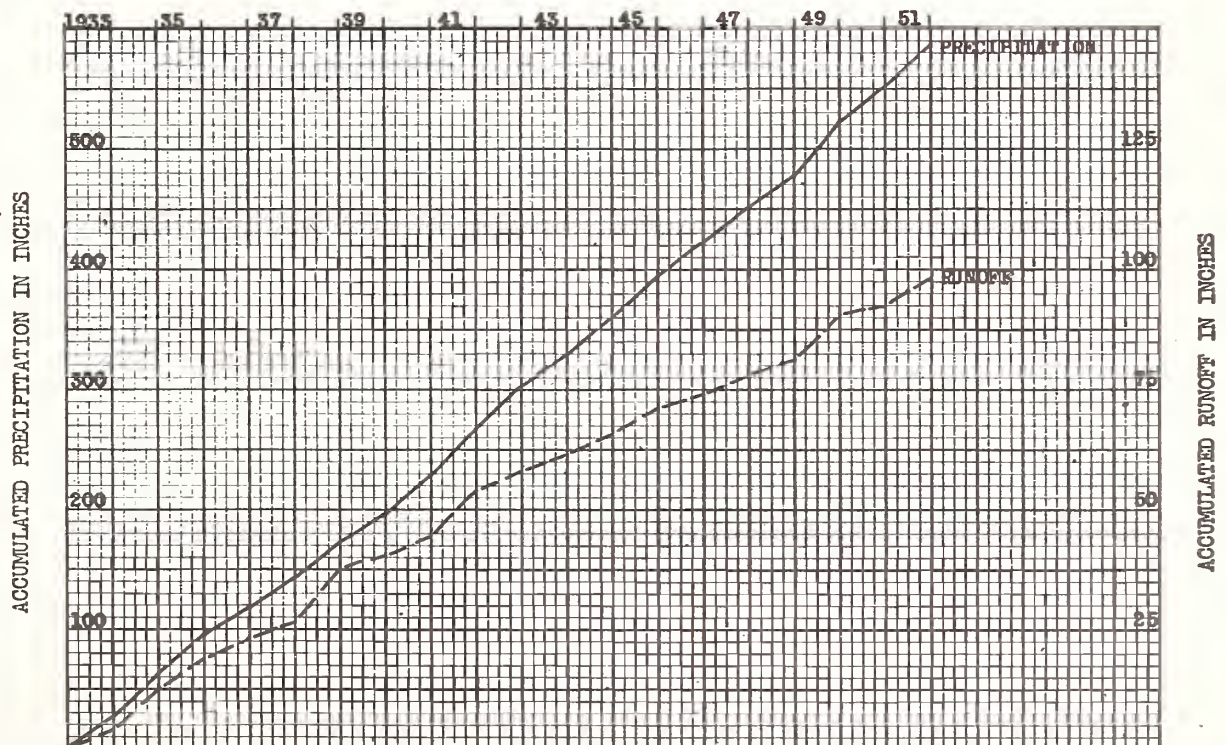
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - metal 2 ft. Parshall flume, 12 hr. chart; precipitation - one weighing recording raingage, 12 hr. chart.

WATERSHED CONDITIONS: An untterraced, gullied, cultivated area with a two year rotation of cotton and cowpeas 1931-38 with cowpeas in 1931. Native grasses seeded in 1939 and well established by 1942. Good native grass cover 1943-51.

GENERALLY REPRESENTS: 1931 to 38, cultivated areas in the Texas Oklahoma Cross Timbers. 1939 to 51, old cultivated fields that have been converted to well managed grassland.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Guthrie, Oklahoma, Watershed 2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1931 P Q	0.87 0	1.37 0	2.05 0	4.86 2.02	1.93 0	1.10 0	1.33 0	1.06 0	1.52 .23	1.01 0	9.60 NR	0.61 0	27.31 √2.25
1932 P Q	4.17 .42	.89 .04	.24 0	1.48 0	4.61 2.09	9.06 NR	2.21 .94	3.81 .68	1.84 0	3.32 *1.14	.15 0	4.04 *1.19	35.82 *√6.50
1933 P Q	.05 0	2.45 0	3.83 .87	2.24 .37	2.68 .74	.05 0	1.90 0	5.58 .50	6.61 1.58	1.82 T	1.28 0	1.43 0	29.92 4.06
1934 P Q	1.85 0	1.14 0	1.26 0	1.70 0	4.13 .90	2.74 .53	0 0	6.65 1.76	9.60 5.72	1.16 .09	3.65 .20	.78 0	34.66 9.20
1935 P Q	.57 0	.91 0	4.19 1.58	2.42 .22	4.25 *.42	5.14 2.68	.73 0	2.70 .42	3.41 .75	2.78 0	1.83 0	1.31 0	30.24 *6.07
1936 P Q	.10 0	.66 .24	0 0	1.14 0	5.19 1.46	1.52 .31	.27 0	.36 0	8.59 1.52	2.12 .29	0 0	.74 0	20.69 3.82
1937 P Q	.50 0	.55 0	2.69 .25	3.73 1.21	1.00 0	4.23 1.16	1.18 0	5.39 1.16	1.42 0	1.81 0	1.48 0	1.11 0	25.09 3.78
1938 P Q	.35 0	2.94 1.43	5.06 2.72	1.83 0	5.32 1.91	4.30 .94	4.00 1.44	1.46 .63	3.48 1.56	.49 0	1.93 0	.27 0	31.43 10.63
1939 P Q	3.30 .37	.27 0	1.21 0	1.18 .12	4.05 1.07	3.87 .50	2.00 .26	4.74 .85	.15 0	.89 0	.56 0	.80 0	23.02 3.17
1940 P Q	.51 0	2.85 T	.04 0	4.94 .47	3.70 1.05	3.48 .62	2.93 .34	3.13 .32	2.66 .02	1.37 0	5.53 1.02	2.17 .17	33.31 4.01
1941 P Q	.56 0	2.12 T	.44 0	4.30 .49	6.04 1.92	4.03 1.00	.42 0	2.61 .09	9.75 4.03	8.40 1.92	1.21 .09	1.11 .07	40.99 9.61
1942 P Q	.19 0	1.31 .04	.61 0	9.16 2.32	1.57 .30	5.60 .03	.18 0	4.89 .15	6.08 .93	2.39 .06	.52 0	2.11 .06	34.61 3.89
1943 P Q	.0 0	.63 0	1.11 0	1.93 .02	10.37 3.04	2.44 .37	.26 0	.30 0	1.34 0	3.93 .42	.23 0	3.15 .03	25.69 3.88
1944 P Q	1.22 .02	1.21 .01	2.80 .37	4.11 .82	3.98 .69	2.20 .29	2.38 T	1.69 0	3.27 .14	4.32 1.06	1.79 .03	2.07 .44	31.04 3.87
1945 P Q	1.03 0	2.20 .10	2.06 .18	3.97 .48	.84 0	10.57 3.70	2.59 .10	.86 0	8.62 1.32	.70 0	0 0	.05 0	33.49 5.88
1946 P Q	2.42 .06	1.74 .09	2.17 .05	2.47 0	4.67 .72	3.00 .13	0 0	2.40 .16	.58 0	2.65 .27	4.26 .48	.96 0	27.32 1.96
1947 P Q	.44 0	0 0	.46 0	11.31 3.13	7.19 1.14	.43 0	2.97 .08	.04 0	1.68 0	.98 0	1.39 0	2.04 0	28.93 4.35
1948 P Q	.09 0	3.00 0	2.29 .18	3.69 .57	3.18 0	7.75 2.32	1.20 0	2.10 0	0 0	1.24 0	1.99 0	.14 0	26.67 3.07
1949 P Q	5.13 .25	.97 0	1.41 0.01	1.32 0	13.19 5.39	8.92 2.19	3.74 .50	1.51 0	4.30 .56	3.31 .02	0 0	1.09 .01	44.89 8.93
1950 P Q	1.05 0	1.33 .02	.23 0	.86 0	5.11 .11	5.10 1.11	10.40 1.64	1.71 .02	1.39 0	.35 0	.67 0	.02 0	28.22 2.90
Av. P Av. Q					Continued on page 35, 2-2a								
Normal P													

Notes:

MONTHLY PRECIPITATION AND RUNOFF (Inches) Guthrie, Oklahoma, Watershed 2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1951 P	1.03	2.26	.98	3.19	5.39	5.84	4.24	3.02	4.62	3.14	2.05	.05#	35.81
Q	0	.16	.01	.46	1.17	1.31	.32	1.03	.49	.04	.23	0 #	5.22
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** Av. P	1.07	1.50	1.73	3.45	4.83	4.27	2.18	2.69	4.08	2.31	1.60	1.13	30.84
** Av. Q	.04	.11	.33	.56	1.16	1.01	.25	.37	.98	.22	.11	.04	5.18
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

**Notes:** # Station discontinued December 31, 1951. \* Partially estimated. \*\* Does not include the part year amounts for 1931 and 1932. NR - No Record. ✓ Incomplete record and not used in average. Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Guthrie, Oklahoma.





LOCATION: Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 3.13 ac.

SHAPE: Roughly rectangular, approximately 500 ft. long by 300 ft. wide.

SLOPES: 100% is in 3-7% slope class; average slope 3.42%. Aspect W.

SOILS: 100% Chickasha fine sandy loam or 40% deep, medium texture, moderately permeable soil; 60% shallow, medium texture slowly permeable soil. Internal drainage poor.

EROSION: 2 - 40%; 3 - 60%.

LAND CAPABILITY: II - 40%; VII - 60%.

SURFACE DRAINAGE: Good, length of principal waterway 850 ft.

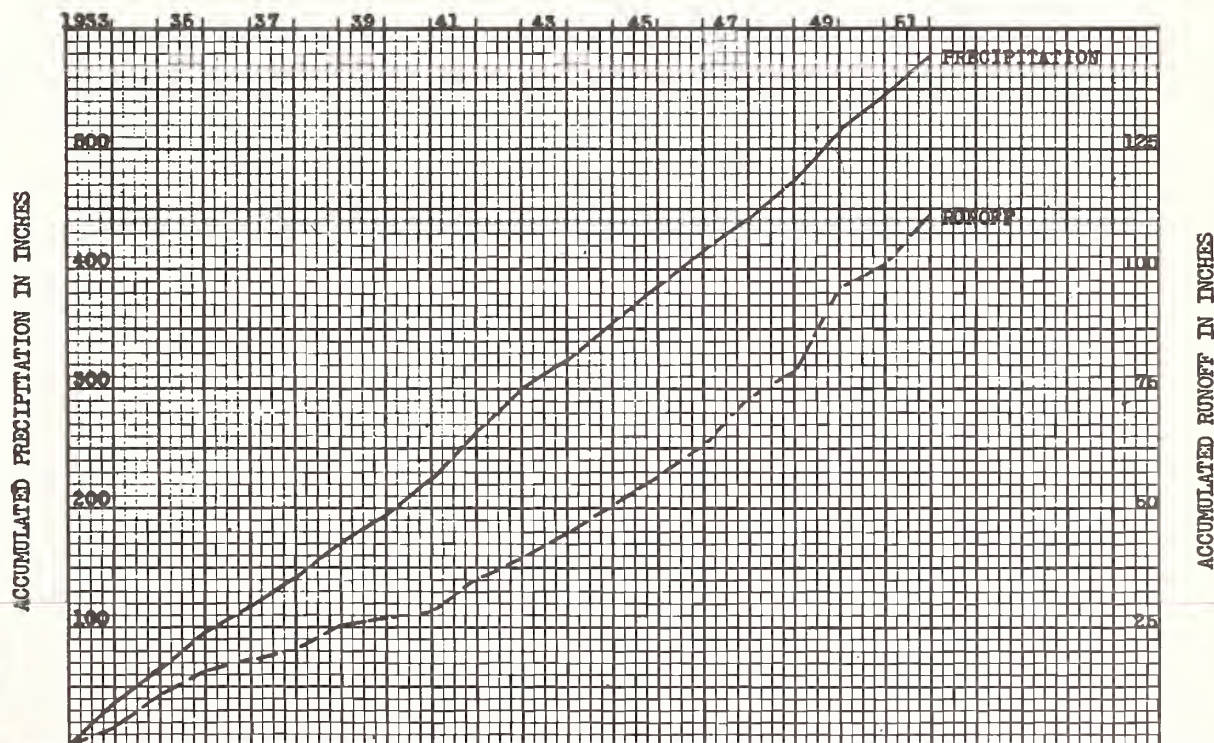
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - metal 1 ft. Parshall flume, 12 hr. chart; precipitation - one weighing recording raingage, 12 hr. chart.

WATERSHED CONDITIONS: A cultivated area with four level terraces from 480 ft. to 540 ft. long with one open end 1931-38. A two year rotation of cotton and cowpeas in 1931-38, with cowpeas in 1931. Native grasses seeded in 1939 and well established by 1942. Good native grass cover 1943-51.

GENERALLY REPRESENTS: 1931 to 38, terraced, cultivated areas in the Texas Oklahoma Cross Timbers. 1939 to 51, terraced, formerly cultivated fields that have been converted to well managed grassland.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Guthrie, Oklahoma, Watershed 3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1930 P Q	0.37 0	1.09 0	0.17 0	2.86 0	9.75 NR	4.30 .02	0.88 .03	2.40 .02	0.44 .02	4.17 .21	1.42 .03	1.93 0	29.78 ✓.33
1931 P Q	.87 0	1.37 0	2.05 0	4.86 NR	1.93 0	1.10 0	1.33 0	1.06 0	1.52 .05	1.01 0	9.60 3.53	.61 0	27.31 ✓3.58
1932 P Q	4.17 .78	.89 .01	.24 0	1.48 0	4.61 .95	9.06 3.34	2.21 .99	3.81 .36	1.84 0	3.32 NR	.15 0	4.04 .24	35.82 ✓6.67
1933 P Q	.05 0	2.45 0	3.83 .94	2.24 .24	2.68 .48	.05 0	1.90 .02	5.58 *.66	6.61 2.37	1.82 T	1.28 0	1.43 0	29.92 *4.71
1934 P Q	1.85 0	1.14 0	1.26 0	1.70 0	4.13 .28	2.74 .26	0 0	6.65 1.82	9.60 4.66	1.16 0	3.65 .13	.78 0	34.66 7.15
1935 P Q	.57 0	.91 0	4.19 .45	2.42 .01	4.25 .39	5.14 1.91	.73 0	2.70 .27	3.41 1.03	2.78 0	1.83 0	1.31 0	30.24 4.06
1936 P Q	.10 0	.66 .06	0 0	1.14 0	5.19 .84	1.52 T	.27 0	.36 0	8.59 1.41	2.12 T	0 0	.74 0	20.69 2.31
1937 P Q	.53 0	.03 0	2.04 .06	3.88 .45	1.04 0	4.50 .49	1.30 0	5.11 1.45	1.47 0	1.85 0	1.68 0	1.15 0	24.58 2.45
1938 P Q	.34 0	2.81 T	4.80 1.96	1.72 0	5.27 1.23	4.16 .59	3.81 .72	1.37 T	3.69 .43	.51 0	1.93 0	.29 0	30.70 4.93
1939 P Q	3.24 0	.29 0	1.16 0	1.08 0	3.98 .90	3.83 .04	2.01 .04	4.60 .24	.16 0	.94 0	.55 0	.68 0	22.52 1.22
1940 P Q	.40 0	3.03 T	.03 0	4.68 .07	3.45 .26	3.48 .39	2.82 .05	3.08 .07	2.53 .01	1.35 0	5.45 .26	2.17 .05	32.47 1.16
1941 P Q	.56 0	1.92 0	.40 0	4.31 .03	5.99 1.39	3.99 .60	.43 0	2.66 T	9.73 3.32	8.18 2.68	1.20 T	1.07 T	40.44 8.02
1942 P Q	.22 0	1.27 T	.61 0	8.53 2.90	1.60 .03	5.47 .01	.20 0	4.82 .05	6.12 .78	2.32 .01	.53 0	2.71 .11	34.40 3.89
1943 P Q	0 0	.62 0	1.11 0	1.92 0	10.26 5.29	2.41 .16	.27 0	.31 0	1.26 0	3.89 .20	.24 0	2.98 .02	25.27 5.67
1944 P Q	1.13 .01	1.18 .01	2.79 .05	4.13 .44	3.87 .87	2.25 .59	2.37 0	1.64 0	3.16 .26	4.22 1.58	1.74 .01	2.00 .94	30.48 4.76
1945 P Q	1.02 0	2.13 .19	2.05 .27	4.04 1.25	.83 0	10.60 2.40	2.56 .25	.85 0	8.51 2.96	.69 0	0 0	.05 0	33.33 7.32
1946 P Q	2.55 .33	1.72 .46	2.19 .27	2.45 .10	4.72 1.40	2.91 .49	0 0	2.43 .47	.61 0	2.58 .51	4.31 1.52	.94 .05	27.41 5.60
1947 P Q	.43 0	0 0	.46 0	10.94 6.40	7.20 2.99	.44 0	2.80 .12	.04 0	1.51 0	.93 0	1.36 0	2.04 .01	28.15 9.52
1948 P Q	.07 0	3.00 0	2.21 .88	3.63 1.90	3.21 .01	7.70 3.69	1.27 0	2.07 0	0 0	1.21 0	1.96 0	.15 0	26.48 6.48
1949 P Q	5.32 1.17	1.01 0	1.38 .03	1.33 0	13.38 8.40	8.68 4.38	3.65 .85	1.54 0	4.19 .86	3.25 .16	0 0	1.06 .02	44.79 15.87
Av. P Av. Q					Continued on page 35.3-2a								
Normal P													

Notes:



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Guthrie, Oklahoma, Watershed 3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1950 P	1.07	1.36	.22	.89	5.10	5.10	10.50	1.68	1.42	.30	.65	.02	28.31
Q	0	.07	0	0	.58	2.05	3.86	.01	0	0	0	0	6.57
1951 P	1.04	2.29	.98	3.21	5.34	5.70	4.15	2.93	4.47	3.10	1.94	#.04	35.19
Q	0	.44	.04	.95	2.39	2.69	.74	1.15	.88	.15	.54	#0	9.97
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**Av. P	1.08	1.46	1.67	3.38	4.82	4.25	2.16	2.65	4.05	2.27	1.59	1.14	30.52
**Av. Q	.08	.06	.26	.78	1.46	1.09	.35	.33	1.00	.28	.13	.06	5.88
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

**Notes:** # Station discontinued December 31, 1951. \* Partially estimated. \*\* Does not include the part year amounts for 1930, 1931, and 1932. NR - No Record. √ Incomplete record and not used in average. Quality of records: P -good; Q - good. Normal P based on 40 year record (1915-1955) at Guthrie, Oklahoma.



5-56

GUTHRIE, OKLAHOMA Watershed 4 (Plot L)

LOCATION: Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 5.62 ac.

SHAPE: Fan, approximately 740 ft. long by 475 ft. wide.

SLOPES: 10% along divide of watershed is in 1-3% slope class; 90% in 5-8%; average slope 4.50%.  
Aspect S.

SOILS: 60% Zanies fine sandy loam; 7% Chickasha fine sandy loam; 33% Stephenville fine sandy loam; or 60% deep, medium texture slowly permeable soils; 40% deep, medium texture moderately permeable soil. Internal drainage poor.

EROSION: 1 - 100%.

LAND CAPABILITY: IV - 100%.

SURFACE DRAINAGE: Good, length of principal waterway 740 ft.

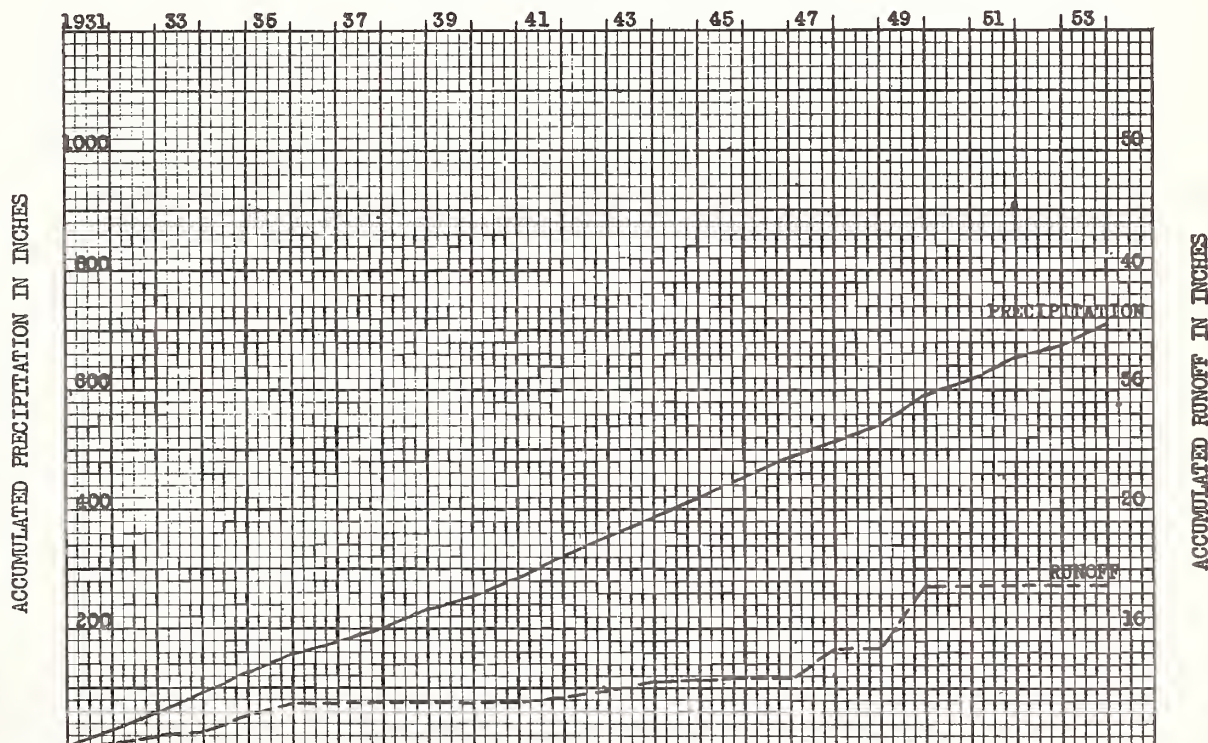
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - metal 1 ft. Parshall flume, 12 hr. chart; precipitation - one weighing recording raingage, 12 hr. chart.

WATERSHED CONDITIONS: Native woodland with occasional open areas of native grasses. Trees not cut nor grasses grazed. Approximately 1/2 acre is classed as grassland with only a few scattered groups of trees, the remainder has a good cover of stunted blackjack and post oak. The trees occur in groups ranging up to 1/2 acre in extent and the open areas between groups of trees are well covered with grass.

GENERALLY REPRESENTS: Areas in the Texas Oklahoma Cross Timbers with native cover not utilized.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Guthrie, Oklahoma, Watershed 1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1931 P Q	0.87 0	1.37 0	2.05 0	4.86 .08	1.93 0	1.10 0	1.33 0	1.06 0	1.52 0	1.01 0	9.60 .13	0.61 0	27.31 .21
1932 P Q	4.46 .02	1.51 0	.22 0	1.33 0	4.47 .04	9.34 .44	2.24 .18	3.85 .03	1.49 0	3.18 .01	.10 0	4.01 0	36.20 .72
1933 P Q	.12 0	2.43 0	3.54 .13	2.35 .02	2.83 .02	.05 0	1.87 0	5.49 0	6.49 .07	1.84 0	1.18 0	1.36 0	29.55 .24
1934 P Q	1.60 0	1.17 0	1.18 0	1.45 0	3.78 .06	2.56 .01	0 0	6.95 .06	9.49 1.34	1.27 0	3.48 .07	.75 0	33.68 1.54
1935 P Q	.56 0	.87 0	4.32 .62	2.52 .01	4.15 .17	5.22 .25	.75 0	2.88 .01	3.37 .04	2.63 0	1.89 0	1.30 0	30.46 1.10
1936 P Q	.09 0	.60 0	0 0	.99 0	5.23 .01	1.50 T	.22 0	.26 0	8.31 T	1.94 T	0 0	.62 0	19.76 .01
1937 P Q	.50 0	.03 0	1.90 0	3.49 T	1.04 0	4.33 T	1.17 0	5.07 0	1.47 0	1.75 0	1.49 0	1.08 0	23.32 T
1938 P Q	.36 0	2.82 0	4.90 .03	1.81 0	5.16 .02	4.11 0	3.78 0	1.38 0	3.36 0	.59 0	1.91 0	.27 0	30.45 .05
1939 P Q	3.25 0	.26 0	1.19 0	1.08 0	4.03 0	3.80 0	2.11 0	4.56 0	.16 0	.93 0	.53 0	.68 0	22.58 0
1940 P Q	.35 0	2.63 0	.04 0	4.57 0	4.11 .01	3.41 0	2.83 0	3.02 0	2.38 0	1.24 0	5.34 0	2.12 0	32.04 .01
1941 P Q	.56 0	1.86 0	.36 0	4.25 0	5.92 .10	3.72 .01	.41 0	2.71 0	9.60 T	8.08 .12	1.18 0	1.05 0	39.70 .23
1942 P Q	.15 0	1.27 0	.56 0	9.09 0	1.54 0	5.73 0	.14 0	4.98 .82	6.38 0	2.39 0	.49 0	2.01 0	34.73 .82
1943 P Q	0 0	.64 0	1.41 0	1.86 0	10.50 .61	2.35 0	.28 0	.30 0	1.25 0	4.19 0	.27 0	3.40 0	26.45 .61
1944 P Q	1.64 0	1.31 0	3.44 0	4.43 .01	4.19 .01	2.32 0	2.78 0	1.85 0	3.36 0	4.22 0	1.82 0	2.11 0	33.47 .02
1945 P Q	1.17 0	2.44 0	2.23 0	4.12 .01	.89 0	11.01 .33	2.76 0	.85 0	8.83 T	.79 0	0 0	.03 0	35.12 .34
1946 P Q	2.79 0	2.03 0	2.41 0	2.39 0	5.12 0	3.05 0	0 0	2.60 0	.65 0	2.62 0	4.51 0	.98 0	29.15 0
1947 P Q	.68 0	0 0	.66 0	11.13 1.42	7.20 1.01	.63 0	2.78 0	.08 0	1.57 0	.88 0	1.40 0	2.40 0	29.41 2.43
1948 P Q	.14 0	3.56 0	2.85 0	3.45 0	3.50 0	7.95 .10	1.54 0	2.15 0	0 0	1.16 0	2.10 0	.16 0	28.56 .10
1949 P Q	6.08 0	1.09 0	1.59 0	1.37 0	14.27 3.83	9.16 1.14	3.90 .01	1.59 0	4.32 .01	3.49 0	0 0	1.16 0	48.02 4.99
1950 P Q	1.16 0	1.46 0	.32 0	1.00 0	5.41 0	5.21 T	11.07 0	1.62 0	1.47 0	.31 0	.74 0	.02 0	29.79 0
Av. P Av. Q					Continued on page 35.4-2a								
Normal P													

Notes:

## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Guthrie, Oklahoma, Watershed 4

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1951 P	1.35	3.03	1.14	3.39	5.54	6.12	4.04	2.90	4.60	3.12	2.27	.12	37.62
Q	0	0	0	0	0	.01	0	T	0	0	0	0	.01
1952 P	.81	1.61	3.14	2.81	3.65	.86	3.08	2.48	.37	0	1.72	1.01	21.54
Q	0	0	0	0	T	0	0	0	0	0	0	0	T
1953 P	.83	1.42	4.23	2.90	2.12	1.77	5.11	5.97	1.78	6.37	1.00	1.01#	34.54
Q	0	0	0	0	T	0	.25	0	0	0	0	0 #	.25
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LOCATION: Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 5.28 ac.

SHAPE: Roughly triangular, approximately 750 ft. long by 290 ft. wide.

SLOPES: General land slope all in 5-8% slope class, but with greater slopes adjacent to gullies. Slopes range from 1 to 10.5 percent. Aspect S.

SOILS: 100% Zanies fine sandy loam, internal drainage poor; deep, medium texture, slowly permeable soil.

EROSION: 4 - 100%. Traversed longitudinally by several gullies from 6 inches to 8 ft. deep.

LAND CAPABILITY: VII - 100%.

SURFACE DRAINAGE: Good, drainage by several gullies 6 inches to 8 ft. deep.

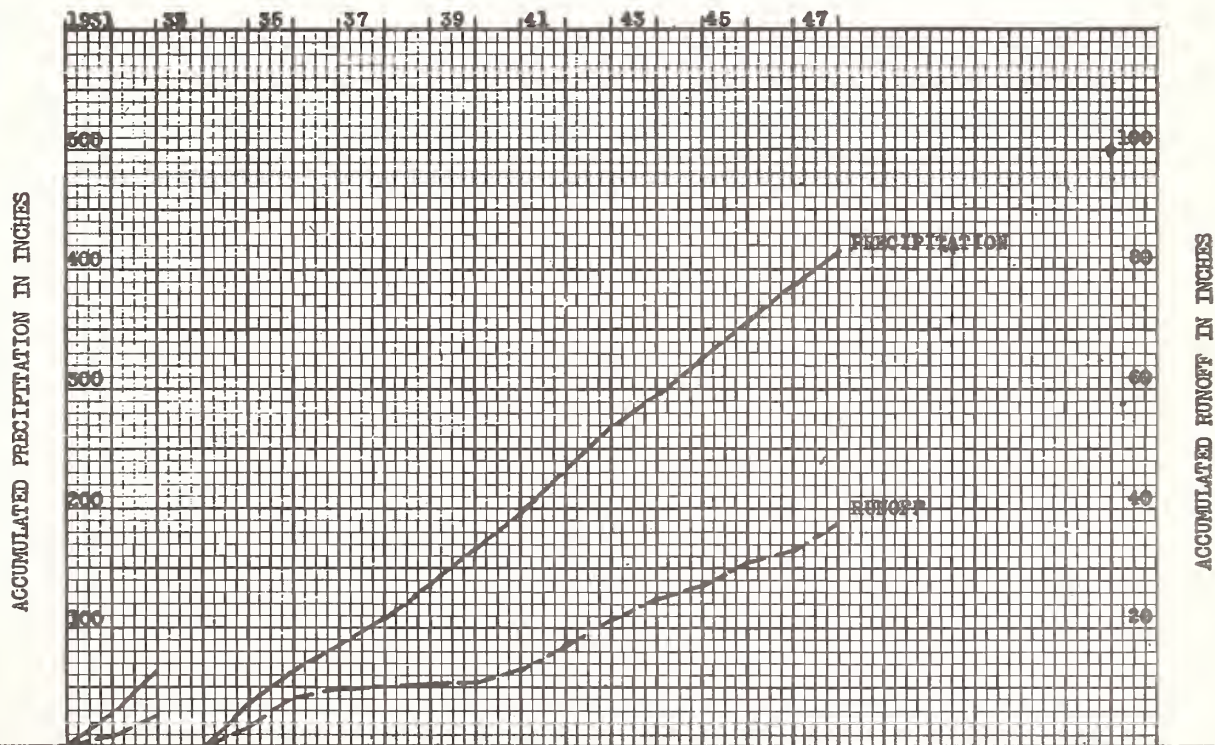
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 1 ft. Parshall flume, 22 hr. chart; precipitation - one weighing recording and one standard raingage.

WATERSHED CONDITIONS: The area is seriously eroded and contains many small gullies. Cover on the inter-gullied area is a mixture of native grasses and weeds. No effort has been made to reclaim the gullies or to increase the cover other than natural succession. Protection has been afforded from fire, and there has been no grazing.

GENERALLY REPRESENTS: Severely eroded areas in the Texas Oklahoma Cross Timbers that are no longer cultivated and have grown up with grasses and weeds.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Guthrie, Oklahoma Watershed 5 (Plot J)**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1931 P	.87	1.40	2.13	4.90	1.93	1.16	1.33	1.12	1.76	1.08	9.80	.61	28.09
Q	0	0	0	.59	0	0	0	0	0	0	1.28	0	1.87
1932 P	4.46	1.51	.20	1.33	4.57	9.34	2.26	3.88	1.57	3.10	.12	4.25	36.59
Q	.31	.01	0	0	.53	1.93	.62	.11	0	.05	0	0	3.56
1933 P	.20	1.74	3.66	2.35	2.79	.07	2.84	4.60	6.15	1.84	1.21	1.67	29.12
Q	0	0	.03✓	.01	0	0	.05	.36	.62	T	0	0	1.07✓
1934 P	1.60	1.17	1.18	1.45	3.96	2.82	.01	6.92	9.49	1.26	3.44	.75	34.05
Q	0	0	0	0	.46	.16	0	.44	2.34	0	0	0	3.40
1935 P	.56	.92	4.32	2.52	4.18	5.23	.75	2.88	3.38	2.65	1.93	1.31	30.63
Q	0	0	.98	.09	.67	1.88	0	.39	.69	0	0	0	4.70
1936 P	.01	.60	0	.99	5.23	1.50	.22	.24	8.71	1.68	0	.61	19.79
Q	0	0	0	0	.77	.11	0	0	.54	T	0	0	1.42
1937 P	.67	.03	1.94	3.88	1.02	4.50	1.30	5.12	1.47	1.85	1.66	1.15	24.59
Q	0	0	0	.20	0	.06	0	.05	0	0	0	0	.31
1938 P	.34	2.82	4.73	1.74	5.12	4.19	3.81	1.37	3.71	.51	1.93	.29	30.56
Q	0	0	.03	0	.34	.04	.19	0	T	0	0	0	.60
1939 P	3.27	.29	1.19	1.07	4.01	3.84	2.03	4.57	.16	.95	.55	.68	22.61
Q	0	0	0	0	.02	0	0	.07	0	0	0	0	.09
1940 P	.39	2.90	.03	4.67	3.66	3.48	2.85	3.06	2.51	1.35	5.42	2.14	32.46
Q	0	0	0	.24	.39	.23	.08	.10	.04	0	.62	.12	1.82
1941 P	.56	1.92	.40	4.28	5.98	3.90	.42	2.67	9.70	8.15	1.20	1.07	40.25
Q	0	.07	0	.44	1.41	.43	0	.04	1.37	.85	.15	.13	4.89
1942 P	.23	1.29	.59	8.71	1.60	5.51	.18	4.84	6.18	2.36	.53	2.49	34.51
Q	0	.05	0	2.97	.18	.14	0	.04	.46	.04	0	.01	3.89
1943 P	0	.61	1.11	1.87	10.35	2.32	.26	.29	1.22	3.92	.24	2.91	25.10
Q	0	0	0	0	3.75	.09	0	0	0	.14	0	.01	3.99
1944 P	1.06	1.18	2.76	4.16	3.89	2.28	2.39	1.67	3.13	4.17	1.75	1.98	30.42
Q	0	0	.13	.59	.64	.13	.01	0	.06	.29	.01	.11	1.97
1945 P	.99	2.12	2.02	4.06	.84	10.65	2.63	.86	8.48	.71	0	.05	33.41
Q	0	.02	.14	.55	0	2.56	.02	0	.96	0	0	0	4.25
1946 P	2.60	1.70	2.21	2.42	4.77	2.91	0	2.51	.62	2.56	4.32	.93	27.55
Q	.03	.12	.04	.02	.49	.09	0	.09	0	.12	.36	0	1.36
1947 P	.38	0	.44	10.76	6.98	.46	2.73	.04	1.44	.90	1.34	2.93 <sup>#</sup>	27.50
Q	0	0	0	3.18	1.66	0	0	0	0	0	0	.01 <sup>#</sup>	4.35
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** Av. P	1.12	1.28	1.58	3.68	4.26	4.01	1.45	2.63	3.97	2.32	2.14	1.45	29.89
** Av. Q	.02	.02	.08	.55	.71	.49	.06	.03	.40	.09	.15	.02	2.67
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

**Notes:** \*\*Does not include incomplete amount for 1933. ✓Incomplete record and not used in average. # Station discontinued December 31, 1947. Normal P. based on 40 year record (1915-1955) at Guthrie, Oklahoma. Quality of records: P - fair; Q - good.



5-56

GUTHRIE, OKLAHOMA Watershed W-I

LOCATION: Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 2.50 ac.

SHAPE: Fan, approximately 500 ft. long by 300 ft. wide.

SLOPES: 90% is in 3-5% slope class; 10% in 5-8%; average slope 5.65%. Aspect NW.

SOILS: 100% Stephenville fine sandy loam; fair internal drainage, all deep, medium texture moderately permeable soil.

EROSION: 1 - 100%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Good, length of principal waterway 520 ft.

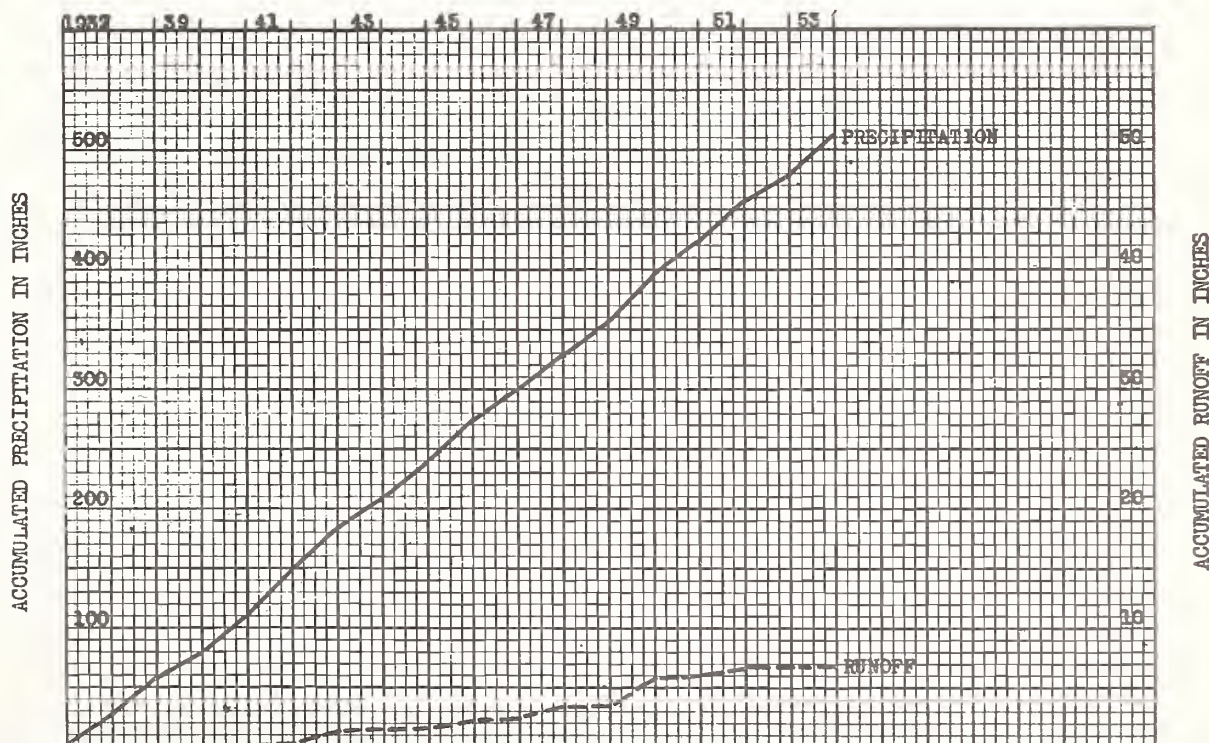
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - metal H-1 flume, 12 hr. chart; precipitation - one weighing recording rainage, 12 hr. chart.

WATERSHED CONDITIONS: Native grasses, never cultivated, excellent cover, moderately grazed. Cleared of brush in 1933.

GENERALLY REPRESENTS: Areas in the Texas Oklahoma Cross Timbers cleared of brush and well managed for grass production.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Guthrie, Oklahoma, Watershed W-I**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P Q	0.69 0	0.10 0	2.12 0	3.25 0	1.21 0	4.40 0	1.31 0	4.67 0	2.04 0	1.74 0	1.34 0	1.12 0	23.99 0
1938 P Q	.35 0	2.79 0	4.65 0	1.87 0	5.46 0	4.14 0	3.79 0	1.45 0	3.86 0	.59 0	1.87 0	.32 0	31.14 0
1939 P Q	3.38 0	.36 0	1.17 0	1.02 0	4.19 0	4.38 0	1.91 0	4.29 0	.21 0	1.09 0	.58 0	.77 0	23.35 0
1940 P Q	.56 0	2.57 0	.04 0	4.08 0	3.69 T	3.22 T	2.89 0	3.19 0	2.38 0	1.25 0	5.28 0	2.07 0	31.22 T
1941 P Q	.66 0	2.11 0	.40 0	4.33 0	5.65 .01	3.66 .02	.47 0	2.55 0	8.56 .04	7.59 .10	1.23 0	1.07 0	38.28 .17
1942 P Q	.21 0	1.56 0	.62 0	8.65 2.04	1.27 .04	6.11 0	.18 0	4.30 .02	5.65 .03	2.49 0	.57 0	1.97 0	33.58 2.13
1943 P Q	0 0	.67 0	1.09 0	1.71 0	9.63 .68	2.54 .01	.22 0	.32 0	1.10 0	3.83 0	.23 0	2.99 0	24.33 .69
1944 P Q	1.09 0	1.22 0	2.98 0	4.43 .01	4.24 .02	2.18 0	3.03 0	1.78 0	3.17 0	4.22 0	1.87 0	2.16 0	32.37 .03
1945 P Q	.98 0	2.01 0	2.26 0	3.80 0	.88 0	10.20 1.34	3.08 .09	.78 0	8.26 0	.76 0	0 0	.05 0	33.06 1.43
1946 P Q	2.68 0	1.66 0	2.36 0	2.30 0	4.72 .01	2.82 .01	0 0	2.72 0	.60 0	2.51 T	4.34 T	.94 0	27.65 .02
1947 P Q	.32 0	0 0	.34 0	10.28 1.22	7.24 .95	.73 0	2.50 0	.08 0	1.26 0	.81 0	1.35 0	1.91 0	26.82 2.17
1948 P Q	.09 0	3.08 0	2.09 0	3.09 0	3.26 0	7.45 .01	1.56 0	2.05 0	0 0	1.15 0	1.88 0	.14 0	25.84 .01
1949 P Q	5.20 0	.93 0	1.43 0	1.34 0	12.91 3.72	8.49 1.50	3.94 .02	1.52 0	4.07 0	3.38 0	0 0	1.05 0	44.26 5.24
1950 P Q	.97 0	1.34 0	.30 0	1.00 0	5.07 0	5.02 T	10.86 .13	1.40 0	1.39 0	.29 0	.64 0	.02 0	28.30 .13
1951 P Q	.97 0	2.22 0	1.01 0	3.47 0	5.34 .16	6.03 .57	3.93 0	2.70 0.07	4.28 0	2.90 0	1.99 0	.02 0	34.86 .80
1952 P Q	.69 0	1.17 0	3.12 0	2.60 0	3.44 0	.76 0	3.23 0	2.34 0	.34 0	0 0	1.68 0	.95 0	20.32 0
1953 P Q P Q P Q	.62 0    	1.31 0    	4.11 0    	2.77 0    	1.92 0    	1.60 0    	5.50 0    	5.78 0    	1.73 0    	6.68 0    	.98 0    	1.22# 0    	34.22 0    
Av. P Av. Q	1.14 0	1.48 0	1.77 0	3.53 .19	4.71 .33	4.34 .20	2.85 .01	2.47 .01	2.88 T	2.43 .01	1.52 0	1.10 0	30.22 .75
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

**Notes:**

# Station discontinued December 31, 1953. Quality of records: P - good; Q - good.  
Normal P based on 40 year record (1915-1955) at Guthrie, Oklahoma.

LOCATION: Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 5.09 ac.

SHAPE: Broad fan, approximately 520 ft. long by 680 ft. wide.

SLOPES: 30% is in 3-5% slope class; 30% in 5-8%; 40% in 8-12%; average slope 5.19%. Aspect NE.

SOILS: 30% Zanies fine sandy loam; 35% Stephenville fine sandy loam; 35% Chickasha fine sandy loam; poor internal drainage, all deep, medium texture moderately permeable soil.

EROSION: 1 - 60%; 2 - 40%.

LAND CAPABILITY: III - 30%; IV - 70%.

SURFACE DRAINAGE: Good, length of principal waterway 520 ft.

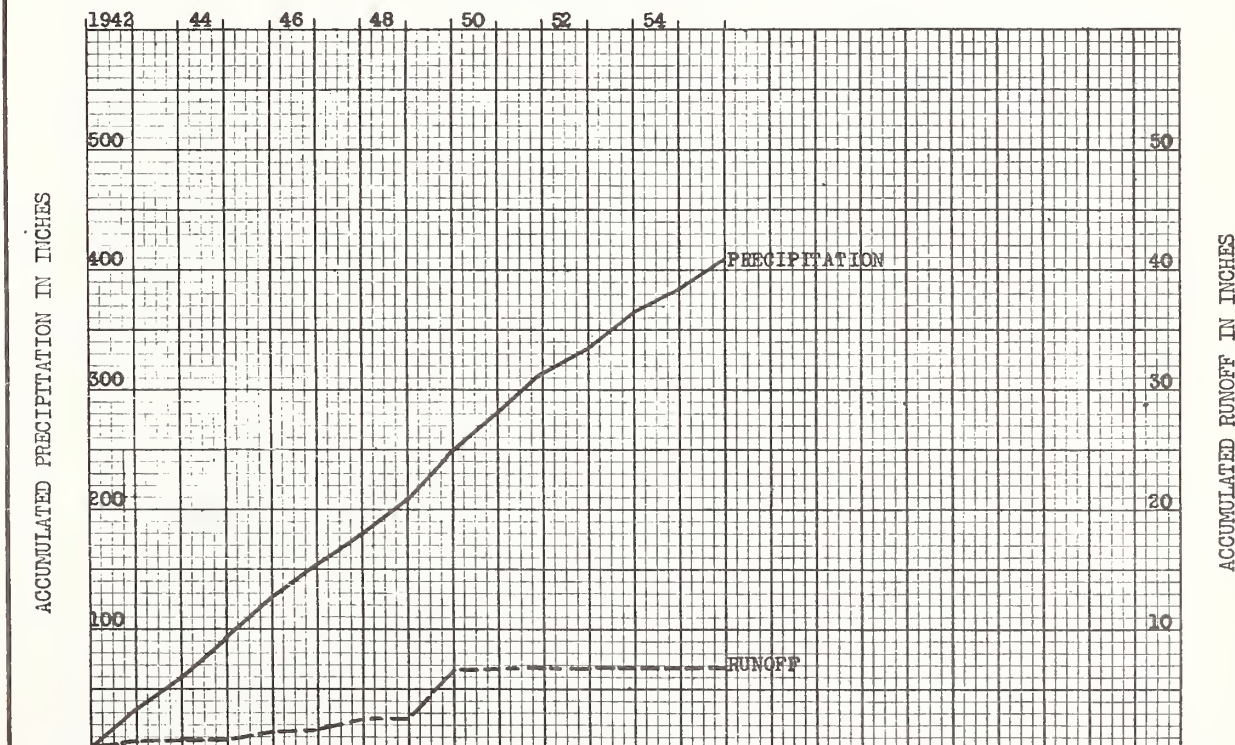
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete and wood H-3 flume with 12 hr. chart; precipitation - one weighing recording rainage.

WATERSHED CONDITIONS: Native grass, never cultivated, brush cleared in 1935 and 36, scattered oak sprouts that have been mowed annually, excellent cover moderately grazed.

GENERALLY REPRESENTS: Areas in the Texas Oklahoma Cross Timbers cleared of brush and well managed for grass production.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Guthrie, Oklahoma, Watershed W-II

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P	0.21	1.56	0.62	8.65	1.27	6.11	0.18	4.30	5.65	2.49	0.57	1.97	33.58
Q	0	0	0	.52	.02	0	0	0	.01	0	0	0	.55
1943 P	0	.67	1.09	1.71	9.63	2.54	.22	.32	1.10	3.83	.23	2.99	24.33
Q	0	0	0	0	.22	0	0	0	0	0	0	0	.22
1944 P	1.09	1.22	2.98	4.43	4.24	2.18	3.03	1.78	3.17	4.22	1.87	2.16	32.37
Q	0	0	0	.03	.01	0	0	0	0	0	0	0	.04
1945 P	.98	2.01	2.26	3.80	.88	10.20	3.08	.78	8.26	.76	0	.05	33.06
Q	0	0	0	.01	0	.36	T	0	T	0	0	0	.37
1946 P	2.68	1.66	2.36	2.30	4.72	2.82	0	2.72	.60	2.51	4.34	.94	27.65
Q	0	0	0	0	.01	0	0	0	0	0	0	0	.01
1947 P	.32	0	.34	10.28	7.24	.73	2.50	.08	1.26	.81	1.35	1.91	26.82
Q	0	0	0	.71	.32	0	0	0	0	0	0	0	1.03
1948 P	.09	3.08	2.09	3.09	3.26	7.45	1.56	2.05	0	1.15	1.88	.14	25.84
Q	0	0	0	0	0	.07	0	0	0	0	0	0	.07
1949 P	5.20	.93	1.43	1.34	12.91	8.49	3.94	1.52	4.07	3.38	0	1.05	44.26
Q	0	0	0	0	3.04	.84	.05	T	0	0	0	0	3.93
1950 P	.97	1.34	.30	1.00	5.07	5.02	10.86	1.40	1.39	.29	.64	.02	28.30
Q	0	0	0	0	0	.02	.06	0	0	0	0	0	.08
1951 P	.97	2.22	1.01	3.47	5.34	6.03	3.93	2.70	4.28	2.90	1.99	.02	34.86
Q	0	0	0	0	.05	.11	0	.03	0	0	0	0	.19
1952 P	.69	1.17	3.12	2.60	3.44	.76	3.23	2.34	.34	0	1.68	.95	20.32
Q	0	0	T	0	0	0	0	0	0	0	0	0	T
1953 P	.62	1.31	4.11	2.77	1.92	1.60	5.50	5.78	1.73	6.68	.98	1.22	34.22
Q	0	0	0	0	T	0	0	T	0	0	0	0	T
1954 P	.10	.63	.20	2.27	5.28	1.07	0	2.51	.16	1.13	.23	1.46	15.04
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1955 P	1.16	1.33	1.22	.82	9.30	2.72	.97	1.31	2.18	5.39	.06	0	26.46
Q	0	0	0	0	.02	0	T	0	0	0	0	0	.02
P													
Q													
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Q													
Av. P	1.08	1.37	1.65	3.47	5.32	4.12	2.79	2.11	2.44	2.54	1.13	1.06	29.08
Av. Q	0	0	0	.09	.26	.10	.01	T	T	0	0	0	.46
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

Notes: Quality of records: P - good; Q - good. Normal P based on 40 year record (1915 - 1955) at Guthrie, Oklahoma.



LOCATION: Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 9.09 ac.

SHAPE: Roughly rectangular, approximately 1150 ft. long by 430 ft. wide.

SLOPES: 15% is in 3-5% slope class; 10% in 5-8%; 75% in 8-12%; average slope 7.06%. Aspect NE.

SOILS: 100% Stephenville fine sandy loam; poor internal drainage, shallow medium texture moderately permeable soil.

EROSION: 4 - 100%, severely gullicked.

LAND CAPABILITY: VII - 100%.

SURFACE DRAINAGE: Good, length of principal waterway 1400 ft.

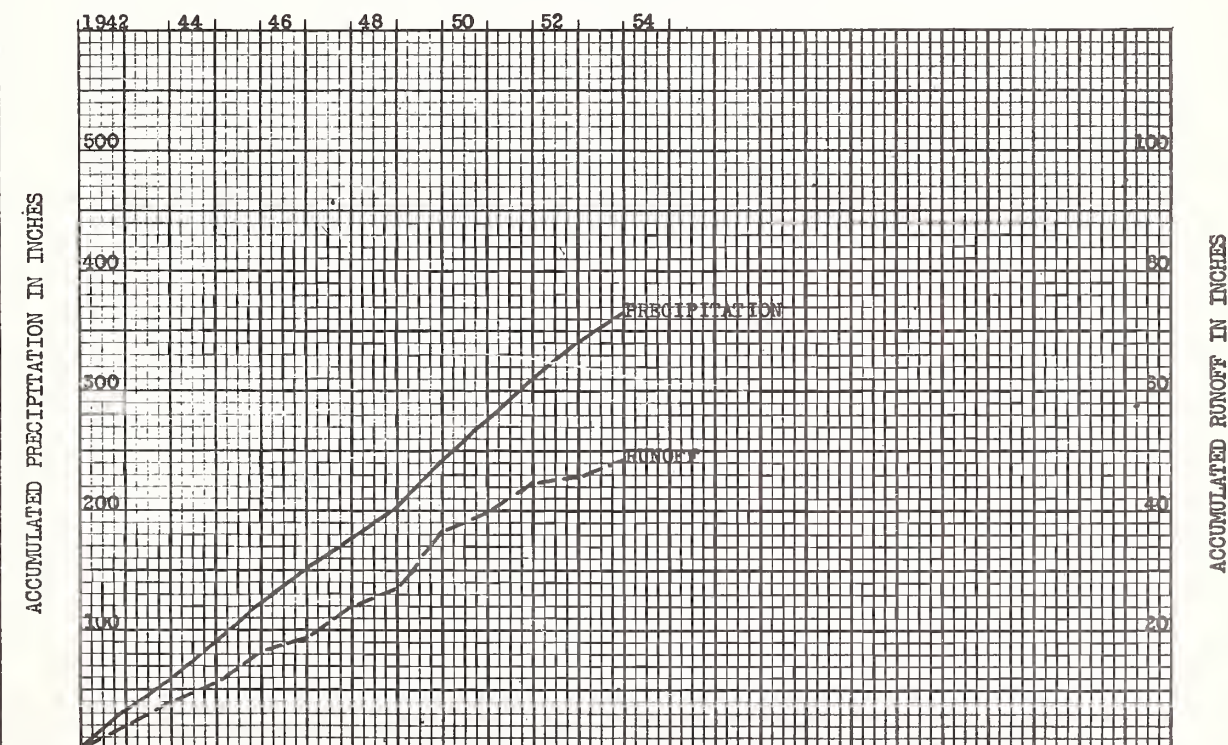
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete and wood H-3 flume, 12 hr. chart: precipitation - one weighing recording raingage, 12 hr. chart.

WATERSHED CONDITIONS: Formerly badly eroded cultivated land. About 1939 gully banks plowed in and phosphate fertilizer applied with native grass seeding. Annual spring mowing, moderate grazing, cover since 1942, fair stand of native grasses, except sparse on most severely eroded areas. Gradually improving cover through 1953.

GENERALLY REPRESENTS: Formerly cultivated areas in the Texas Oklahoma Cross Timbers that have been well managed for grass production.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Guthrie, Oklahoma, Watershed W-III

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P Q	0.27 0	1.37 .03	0.59 0	9.16 3.06	1.54 .20	5.85 .13	0.12 0	4.90 .19	6.18 .67	2.50 .06	0.55 0	2.02 .02	35.05 4.36
1943 P Q	0 0	.64 0	1.00 0	1.67 .01	10.03 3.05	2.35 .15	.25 0	.25 0	1.21 0	3.94 .26	.21 0	2.86 .02	24.41 3.49
1944 P Q	1.03 .01	1.16 0	2.68 .33	4.41 .84	4.20 .83	2.29 .13	2.95 .01	1.78 0	3.27 .09	4.14 .62	1.73 .01	1.98 .32	31.62 3.19
1945 P Q	.91 0	1.90 .02	2.04 .12	3.84 .57	.88 0	10.32 3.34	2.92 .15	.83 0	8.50 1.47	.77 0	0 0	.05 0	32.96 5.67
1946 P Q	2.61 .04	1.66 .06	2.23 .02	2.24 0	4.63 .35	2.91 .11	0 0	2.87 .23	.56 0	2.47 .19	4.33 .43	.89 0	27.40 1.43
1947 P Q	.28 0	0 0	.31 0	10.44 3.91	6.99 1.94	.58 0	2.63 .07	.09 0	1.36 0	.85 0	1.33 0	1.93 0	26.79 5.92
1948 P Q	.05 0	2.82 0	1.98 .17	3.14 .53	3.04 T	7.74 1.98	1.70 .06	2.14 0	0 0	1.15 0	1.78 T	.14 0	25.68 2.74
1949 P Q	5.00 .29	.90 .02	1.28 T	1.27 0	12.95 6.26	8.50 2.62	3.97 .72	1.53 0	4.11 .29	3.15 .01	0 0	.97 0	43.63 10.21
1950 P Q	1.04 0	1.30 0	.24 0	.86 0	5.14 .06	5.14 1.27	10.65 1.60	1.51 0	1.31 0	.32 0	.65 0	.02 0	28.18 2.93
1951 P Q	.94 0	2.14 .16	.99 T	3.47 .43	5.34 1.26	5.99 1.48	3.88 .23	3.02 .68	4.58 .34	2.92 .01	1.87 .11	.02 0	35.16 4.70
1952 P Q	.79 0	1.28 0	3.00 .51	2.67 .92	3.59 .28	.86 T	3.03 .03	2.53 .12	.34 0	0 0	1.68 0	.95 0	20.72 .96
1953 P Q	.62 0	1.24 .01	4.20 .40	2.86 .11	1.99 .04	1.69 T	5.27 .30	6.07 .93	1.70 .15	6.14 .48	1.02 .01	1.09# .21#	33.89 2.64
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	1.13 .03	1.37 .02	1.71 .13	3.84 .79	5.03 1.19	4.52 .93	3.11 .26	2.29 .18	2.76 .25	2.36 .14	1.26 .05	1.08 .05	30.46 4.02
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

**Notes:** #Station discontinued December 31, 1953. Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Guthrie, Oklahoma.

5-56

GUTHRIE, OKLAHOMA Watershed W-IV

LOCATION: Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 13.4 ac.

SHAPE: Triangular, increasing width toward lower end, approximately 1200 ft. long by 700 ft. wide.

SLOPES: 30% is in 1-3% slope class; 70% in 5-8%; average slope 4.72%. Aspect NNE.

SOILS: 90% Zanies fine sandy loam; 10% Chickasha fine sandy loam; poor internal drainage; 70% severely eroded, deep, medium texture, slowly permeable soil, 30% moderately eroded, deep, medium texture, moderately permeable soil.

EROSION: 2 - 10%; 3 - 20%; 4 - 70%, severely gullied.

LAND CAPABILITY: II - 10%; III - 20%; VII - 70%.

SURFACE DRAINAGE: Good, length of principal waterway 1200 ft.

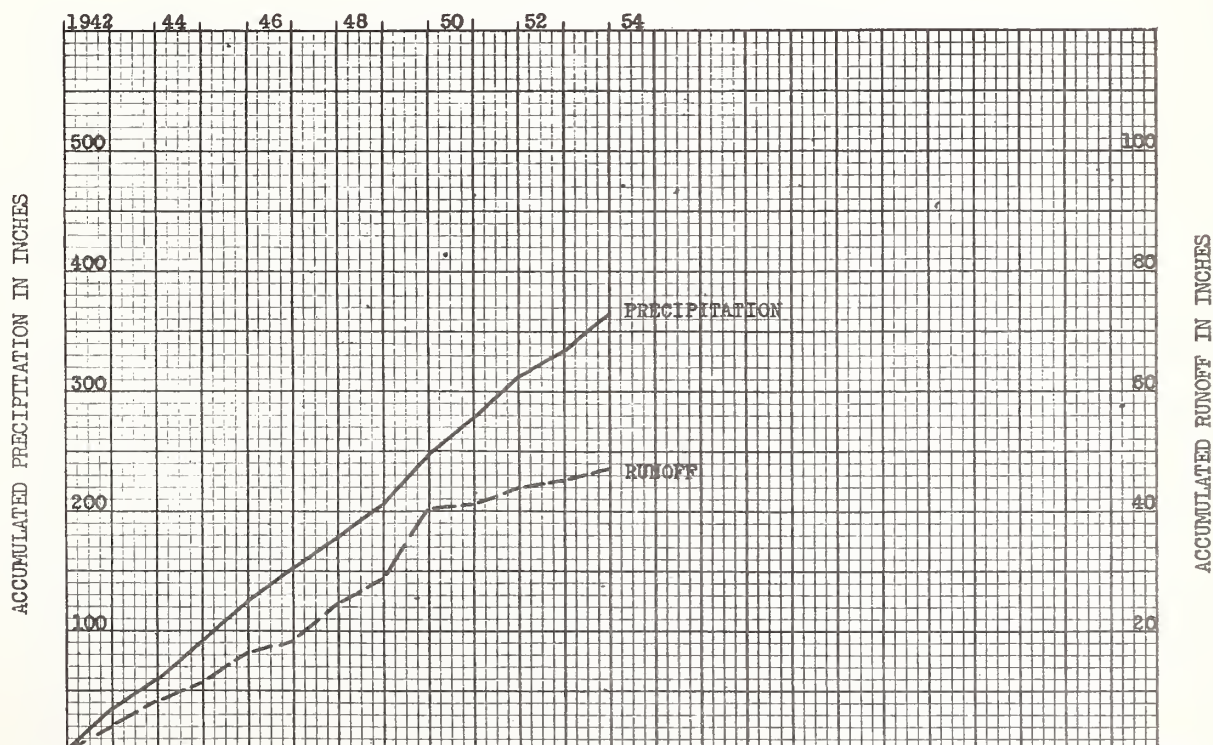
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete and wood H-3 flume, 12 hr. chart; precipitation - one weighing recording rainage, 12 hr. chart.

WATERSHED CONDITIONS: Formerly badly eroded cultivated land. About 1939 gully banks plowed in and phosphate fertilizer applied with native grass seeding. Annual spring mowing, moderate grazing, cover since 1942, fair stand of native grasses, except sparse on most severely eroded areas. Gradually improving cover through 1953.

GENERALLY REPRESENTS: Formerly cultivated areas in the Texas Oklahoma Cross Timbers that have been well managed for grass production.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.



Guthrie, Oklahoma Watershed W-IV

<div style="text-align: right;">Month Year</div>	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P Q	0.27 0	1.37 .04	0.59 0	9.16 3.23	1.54 .20	5.85 .09	0.12 0	4.90 .12	6.18 .76	2.50 .06	0.55 0	2.02 .02	35.05 4.52
1943 P Q	0 0	.64 0	1.02 0	1.72 T	10.20 3.03	2.38 .18	.25 0	.24 0	1.27 0	4.00 .26	.22 0	2.97 .01	24.91 3.48
1944 P Q	1.06 T	1.16 T	2.70 .33	4.34 .84	4.15 .86	2.30 .16	2.81 0	1.83 0	3.26 .09	4.12 .69	1.82 T	2.00 .35	31.55 3.32
1945 P Q	.91 0	1.97 .03	2.14 .13	4.05 .64	.88 0	10.37 2.56	2.69 .13	.88 0	8.45 1.61	.77 0	0 0	.05 0	33.16 5.10
1946 P Q	2.62 .04	1.67 .12	2.23 .05	2.27 0	4.48 .54	2.94 .12	0 0	2.73 .24	.58 0	2.44 .21	4.27 .52	.90 0	27.13 1.84
1947 P Q	.27 0	0 0	.37 0	10.18 4.49	7.03 2.04	.54 0	2.65 .08	.07 0	1.37 0	.88 0	1.29 0	2.04 T	26.69 6.61
1948 P Q	.05 0	2.90 0	2.03 .28	3.25 .86	3.00 .11	7.75 2.24	1.56 .05	2.14 0	0 0	1.09 0	1.79 0	.12 0	25.68 3.54
1949 P Q	5.20 .42	.96 .02	1.36 T	1.27 0	13.07 6.91	8.65 2.91	4.11 .93	1.51 0	4.17 .42	3.17 .01	0 0	1.05 0	44.52 11.62
1950 P Q	1.04 0	1.30 T	.24 0	.86 0	5.14 .01	5.14 .38	10.65 .54	1.51 T	1.31 0	.32 0	.65 0	.02 0	28.18 .93
1951 P Q	.95 0	2.20 .16	1.04 T	3.48 .42	5.44 .88	5.77 .50	3.97 .26	3.09 .31	4.45 .36	2.99 T	1.91 .10	.02 0	35.31 2.99
1952 P Q	.72 0	1.14 0	2.97 .46	2.63 .03	3.49 .36	.84 T	3.05 .02	2.47 .09	.34 0	0 0	1.62 0	.95 T	20.22 .96
1953 P Q  P Q  P Q  P Q  P Q  P Q	.55 0    	1.27 T    	4.13 .34    	2.73 .10    	1.89 .07    	1.61 T    	5.35 .16    	6.17 .28    	1.80 .15    	6.26 .47    	1.00 T    	1.16# .20#    	33.92 1.77    
Av. P Av. Q	1.14 .04	1.38 .03	1.74 .13	3.83 .88	5.03 1.25	4.51 .76	3.10 .18	2.30 .09	2.76 .28	2.38 .14	1.26 .05	1.11 .05	30.54 3.88
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

Notes: # Station discontinued December 31, 1953. Quality of records: P - good; Q - good. Normal P based on 40 year record (1915 - 1955) at Guthrie, Oklahoma.

5-56

GUTHRIE, OKLAHOMA Watershed W-V

LOCATION: Logan Co., Oklahoma; 4 1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 15.7 ac.

SHAPE: Roughly rectangular, approximately 1750 ft. long by 500 ft. wide.

SLOPES: 10% is in 1-3% slope class; 90% in 5-8%; average slope 4.61%. Aspect NW.

SOILS: 60% Chickasha fine sandy loam; 40% Stephenville fine sandy loam; poor internal drainage; 95% severely eroded, deep, medium texture, moderately permeable soil; 5% moderately eroded, deep, medium texture, moderately permeable soil.

EROSION: 2 - 5%; 4 - 95%.

LAND CAPABILITY: II - 5%; VII - 95%.

SURFACE DRAINAGE: Good, length of principal waterway 2110 ft.

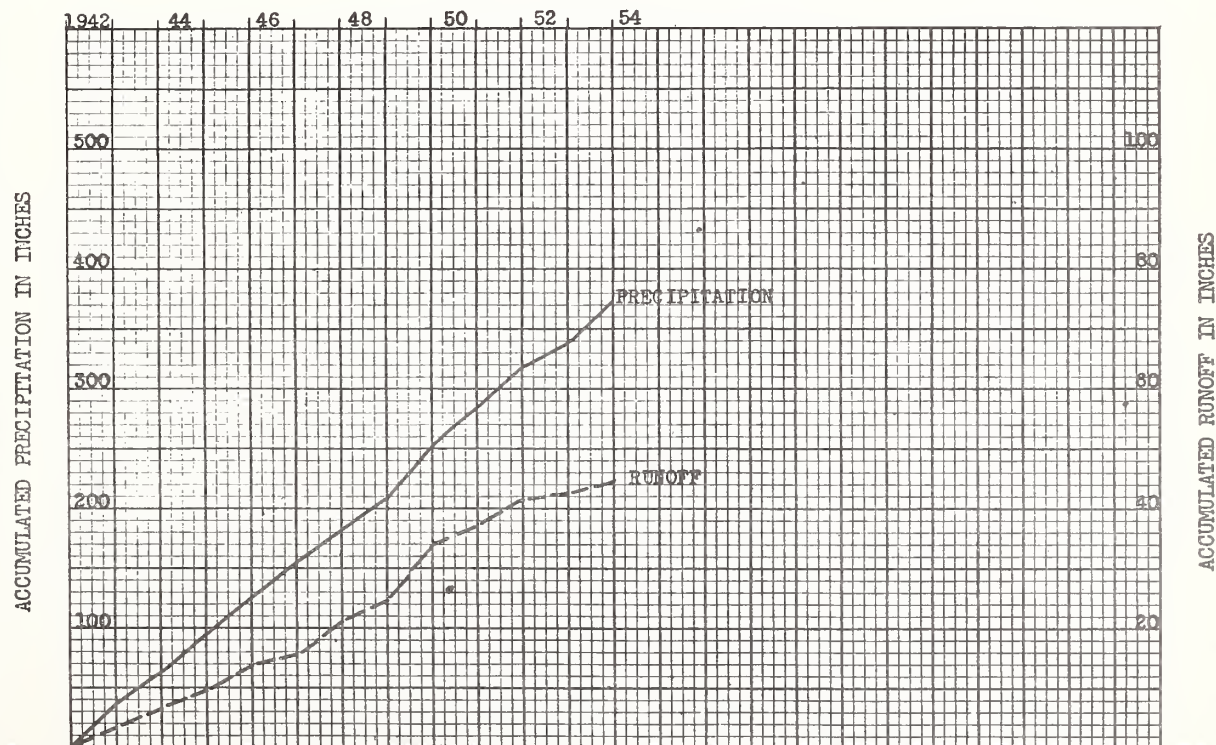
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete and wood H=4.5 flume, 12 hr. chart; precipitation - one weighing recording raingage, 12 hr. chart.

WATERSHED CONDITIONS: Formerly badly eroded cultivated land. About 1939 gully banks plowed in and phosphate fertilizer applied with native grass seeding. Annual spring mowing, moderate grazing, cover since 1942, fair stand of native grasses, except sparse on most severely eroded areas. Gradually improving cover through 1953.

GENERALLY REPRESENTS: Formerly cultivated areas in the Texas Oklahoma Cross Timbers that have been well managed for grass production.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Guthrie, Oklahoma, Watershed W-V

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P Q	0.27 0	1.37 .02	0.59 0	9.16 2.74	1.54 .13	5.85 .03	0.12 0	4.90 .07	6.18 .42	2.50 .02	0.55 0	2.02 .01	35.05 3.44
1943 P Q	0 0	.64 0	1.11 0	1.76 0	10.32 2.95	2.25 .08	.27 0	.26 0	1.28 0	4.09 .22	.25 0	3.25 .01	25.48 3.26
1944 P Q	1.11 T	1.20 T	2.82 .25	4.19 .70	4.19 .74	2.25 .12	2.78 0	1.79 0	3.31 .04	4.21 .65	1.75 .01	2.20 .27	31.80 2.78
1945 P Q	1.04 0	2.19 .01	1.91 .04	4.07 .62	.84 0	11.07 2.62	2.92 .09	.87 0	8.56 1.46	.78 0	0 0	.04 0	34.29 4.84
1946 P Q	2.66 .02	1.78 .04	2.23 .01	2.34 0	4.43 .46	3.11 .11	0 0	2.68 .22	.63 0	2.58 .21	4.47 .45	.95 0	27.86 1.52
1947 P Q	.33 0	0 0	.36 0	10.92 3.81	7.08 1.65	.55 0	2.86 .06	.05 0	1.44 0	.88 0	1.38 0	1.97 T	27.82 5.52
1948 P Q	.08 0	3.22 0	2.01 .17	3.07 .71	3.11 .01	7.40 2.21	1.48 T	2.21 0	0 0	1.11 0	2.11 0	.11 0	25.91 3.10
1949 P Q	5.36 .25	1.00 .02	1.40 0	1.27 0	13.31 5.37	8.92 2.60	4.17 .79	1.44 0	4.25 .38	3.23 .01	0 0	.98 0	45.33 9.42
1950 P Q	1.04 0	1.32 T	.24 0	.81 0	5.14 .13	5.16 1.37	10.48 1.89	1.52 0	1.36 0	.32 0	.66 0	.01 0	28.06 3.39
1951 P Q	1.07 0	2.35 .14	.99 T	3.32 .44	5.24 1.18	6.02 1.27	4.02 .28	2.78 .79	4.78 .37	3.05 T	1.90 .12	.03 0	35.55 4.59
1952 P Q	.74 0	1.17 .01	3.07 .44	2.69 .01	3.66 .32	.87 T	3.11 .01	2.53 .08	.34 0	0 0	1.64 0	.96 0	20.78 .87
1953 P Q	.62 0	1.24 0	4.20 .28	2.86 .05	1.99 .07	1.69 T	5.27 .12	6.07 .74	1.70 .14	6.14 .29	1.02 .19	1.09# .15#	33.89 2.03
P													
Q													
P													
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Q													
P													
Q													
Av. P Av. Q	1.19 .02	1.46 .02	1.74 .10	3.87 .76	5.07 1.08	4.60 .87	3.12 .27	2.26 .16	2.82 .23	2.41 .12	1.31 .06	1.13 .04	30.98 3.73
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

**Notes:** # Station discontinued December 31, 1953. Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Guthrie, Oklahoma.



LOCATION: Logan Co., Oklahoma;  $\pm$  1/2 mi. SSE of Guthrie; Cimarron River Basin.

AREA: 94.8 ac.

SHAPE: Long, increasing width toward lower end, approximately 3250 ft. long by 1900 ft. wide.

SLOPES: 6% is in 1-3% slope class; 28% in 3-5%; 41% in 5-8%; 25% in 8-12%; average slope 6.01%.

Aspect N.

SOILS: 35% Zanies fine sandy loam; 15% Chickasha fine sandy loam; 30% Stephenville fine sandy loam; 20% Noble fine sandy loam; poor internal drainage.

EROSION: 1 - 40%; 2 - 15%; 3 - 25%; 4 - 20%, severely gullied.

LAND CAPABILITY: II - 3%; III - 17%; IV - 40%; VI - 10%; VII - 30%.

SURFACE DRAINAGE: Good, length of principal waterway 3250 ft.

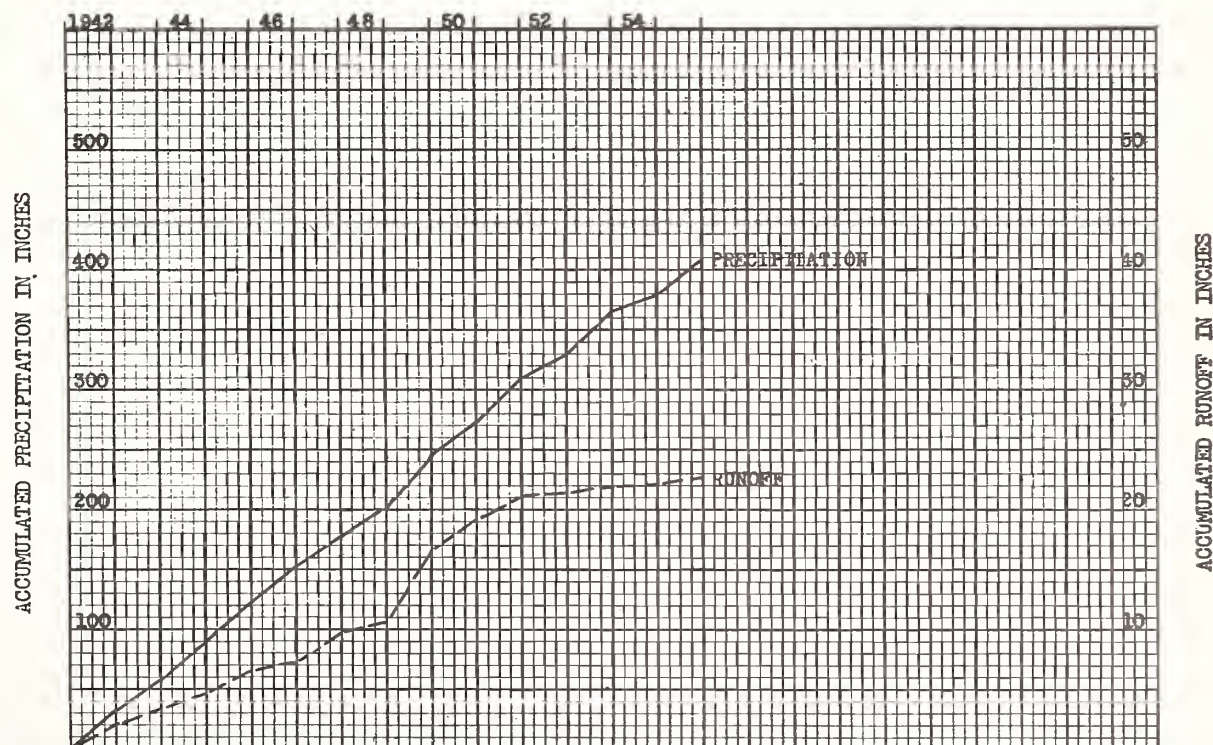
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested 1-5 V-notch weir, 12 hr. chart; precipitation - one weighing recording rainage, 12 hr. chart.

WATERSHED CONDITIONS: Grassland, 30% formerly cultivated, abandoned from cultivation about 1925, with native grasses re-established starting in 1939. By 1942 fair cover except on worst eroded areas, mowed once annually in fall. Gradually improving condition since 1942. 70% area never cultivated, but much of the area had grown up to brush. Cleared 1935-44. Moderately grazed throughout period of record.

GENERALLY REPRESENTS: Areas in the Texas Oklahoma Cross Timbers which includes some abandoned cultivated land and brushy pasture and on which there has been improved management and re-establishment of grasses.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Guthrie, Oklahoma, Watershed W-VI

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1942 P	0.27	1.37	0.59	9.16	1.54	5.85	0.12	4.90	6.18	2.50	0.55	2.02	35.05
Q	0	.01	0	1.76	.07	.01	0	.03	.20	0	0	0	2.08
1943 P	0	.64	1.00	1.67	10.03	2.35	.25	.25	1.21	3.94	.21	2.86	24.41
Q	0	0	0	0	1.21	.05	0	0	0	.06	0	0	1.32
1944 P	1.03	1.16	2.68	4.41	4.20	2.29	2.95	1.78	3.27	4.14	1.73	1.98	31.62
Q	0	0	.09	.30	.32	.04	0	0	T	.23	0	.12	1.10
1945 P	.91	1.90	2.04	3.84	.88	10.32	2.92	.83	8.50	.77	0	.05	32.96
Q	0	0	.03	.17	0	1.55	.06	0	.51	0	0	0	2.32
1946 P	2.61	1.66	2.23	2.24	4.63	2.91	0	2.87	.56	2.47	4.33	.89	27.40
Q	.01	.02	.01	0	.13	.03	0	.08	0	.06	.22	0	.56
1947 P	.28	0	.31	10.44	6.99	.58	2.63	.09	1.36	.85	1.33	1.93	26.79
Q	0	0	0	1.75	.82	T	.01	0	0	0	0	0	2.58
1948 P	.05	2.82	1.98	3.14	3.04	7.74	1.70	2.14	0	1.15	1.78	.14	25.68
Q	0	0	.04	.14	0	.57	.02	0	0	0	0	0	.77
1949 P	5.00	.90	1.28	1.27	12.95	8.50	3.97	1.53	4.11	3.15	0	.97	43.63
Q	.09	.01	0	0	3.87	1.49	.32	0	.09	T	0	T	5.87
1950 P	1.05	1.28	.24	.88	5.23	5.11	10.45	1.53	1.44	.35	.72	.02	28.30
Q	0	0	0	0	.08	1.26	1.61	0	0	0	0	0	2.95
1951 P	.94	2.14	.99	3.47	5.34	5.99	3.88	3.02	4.58	2.92	1.87	.02	35.16
Q	0	.03	0	.09	.41	.67	.08	.30	.10	T	.02	0	1.70
1952 P	.79	1.29	3.00	2.67	3.59	.86	3.03	2.53	.34	0	1.68	.95	20.73
Q	0	0	.01	T	.06	T	.01	.02	0	0	0	T	.10
1953 P	.62	1.24	4.20	2.86	1.99	1.69	5.27	6.07	1.70	6.14	1.02	1.09	33.89
Q	0	T	.09	.02	.02	0	.06	.34	.05	.01	T	.05	.64
1954 P	.13	.63	.22	2.19	5.20	1.02	0	2.47	.18	1.10	.20	1.59	14.93
Q	0	T	0	T	.01	T	0	.01	0	0	0	T	.02
1955 P	1.23	1.34	1.23	.80	9.32	2.76	.91	1.30	2.15	5.36	.05	0	26.45
Q	0	0	0	0	.50	.02	.01	0	0	.16	0	0	.69
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
Av. P	1.06	1.31	1.57	3.50	5.35	4.14	2.72	2.24	2.54	2.49	1.10	1.04	29.06
Av. Q	.01	.01	.02	.30	.54	.41	.16	.06	.07	.04	.02	.01	1.65
Normal P	1.23	1.29	2.08	3.52	4.87	3.75	2.66	2.90	3.31	2.75	2.02	1.40	31.78

**Notes:** Quality of records: P - good; Q - good. Normal P based on 40 year record (1915-1955) at Guthrie, Oklahoma.



LOCATION: Muskogee Co., Oklahoma; 8 mi. SW of Muskogee; Arkansas River Basin.

AREA: 14.5 ac.

SHAPE: Roughly rectangular, about 720 ft. wide by 900 ft. long.

SLOPES: 100% is in 1-3% class. Aspect E.

SOILS: Cherokee Prairie; topsoil - medium textured, granular structure slowly permeable, moderately deep (17-21 inches); subsoil - heavy moderately plastic clay, slow internal drainage above a slowly permeable clay developed from Pennsylvania shales. Dennis silt loam 100%.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good, length of principal waterway 1200 ft.; area is natural watershed with short diversions at lower end perpendicular to main drain.

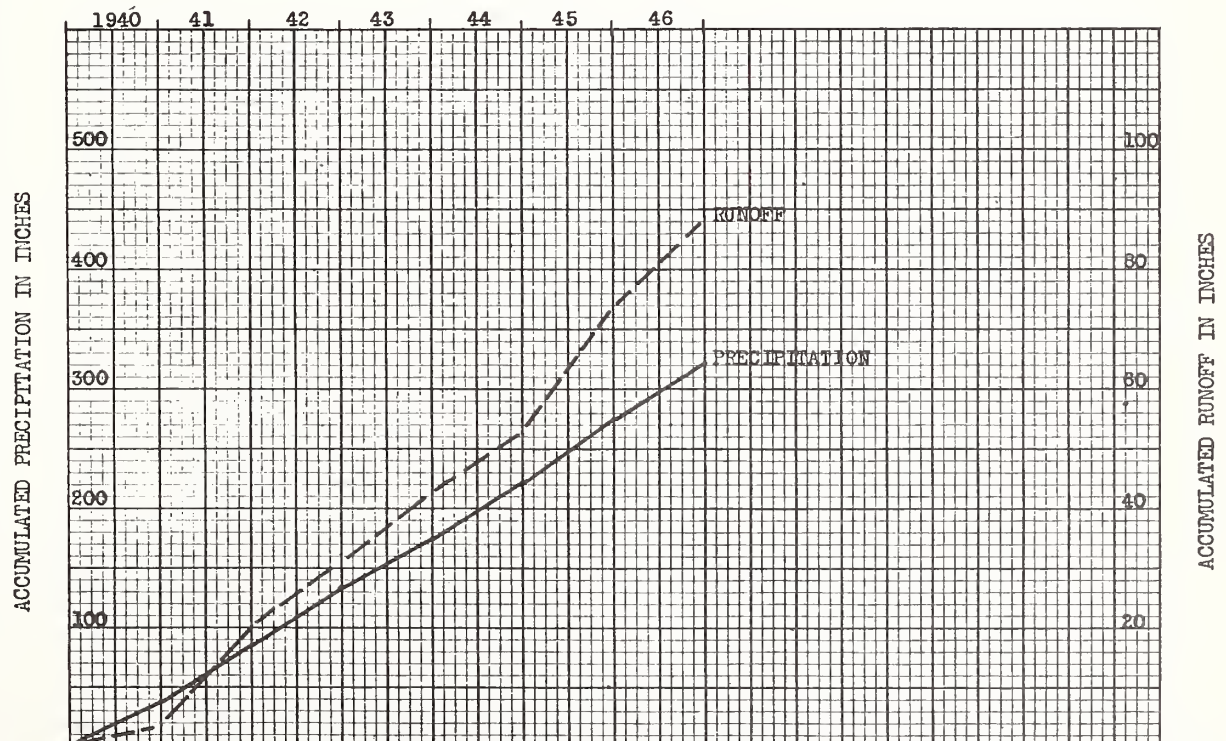
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - V-notch broadcrested concrete weir with 3:1 side slopes, 6 hr. chart; precipitation - recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Alfalfa and annual grasses with at least 1/2 in broadcast crops every year. Plowing and planting was generally on the approximate contour and in strips or bands. Crops that were grown: alfalfa, rye grass, small grain, corn, soy beans, and annual native field grasses. Fair to good cover maintained with very little grazing. In 1941 3/4 was in alfalfa, 1942-1945 all in alfalfa and annual grasses, 1946-1947 1/2 in corn and 1/2 in oats.

GENERALLY REPRESENTS: Moderately eroded areas in the Central-Claypan Area of eastern Oklahoma, southeastern Kansas and western Missouri with annual grass and alfalfa that is maintained and periodically rejuvenated by one year in row crop and then back to grass and alfalfa.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Muskogee, Oklahoma, Watershed W-1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P				2.45	4.53	4.30	0.81	1.90	0	3.09	1.73	1.24	20.05
Q				0	.09	.04	0	0	0	0	0	0	.13
1940 P	0.47	2.18	1.03	6.84	1.62	2.51	4.74	4.57	2.28	1.45	7.09	2.12	36.90
Q	0	0	0	.63	0	0	.63	.24	.03	.03	1.87	.19	3.62
1941 P	2.55	2.23	.38	6.10	.63	5.01	2.80	3.62	3.78	17.13	2.33	1.92	48.48
Q	.87	.52	0	1.83	.01	1.26	.09	.14	.11	10.31	1.20	.40	16.54
1942 P	.85	1.48	.94	9.54	4.08	5.89	2.29	4.87	4.88	4.90	4.41	3.26	47.39
Q	.07	.43	0	4.19	1.35	.41	.17	.03	.08	1.06	2.27	1.41	11.47
1943 P	0	.80	3.10	1.61	16.52	4.41	0	1.71	5.98	3.45	.08	3.43	41.09
Q	0	0	1.00	.07	9.14	1.16	0	0	0	0	0	0	11.37
1944 P	1.22	3.66	5.84	3.39	4.41	5.33	4.58	4.47	2.39	5.58	3.99	1.64	46.50
Q	0	.35	3.67	.36	1.03	1.90	.10	.02	.04	1.28	1.25	.21	10.21
1945 P	1.16	4.66	7.77	13.34	2.74	7.91	2.98	2.62	8.32	1.18	.81	.30	53.79
Q	.01	1.42	4.92*	10.57	.95√	2.39	.41	0	.72	.14*	0	0	21.53*
1946 P	3.97	3.09	2.17	4.73	8.37	5.34	.74	2.20	1.45	1.45	7.09	6.10	46.70
Q	.73	1.20	0	.94	4.17	1.90	.10	0	0	0	.71	4.22	13.97
1947 P	.47	.04	1.53	5.60	6.82	7.20	1.20	.60 #					23.46
Q	0	0	0	1.12	2.59	2.67	.02	0 #					6.40
P													
Q													
P													
Q													
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**Av. P	1.46	2.59	3.03	6.51	5.48	5.20	2.59	3.44	4.15	5.02	3.69	2.68	45.84
**Av. Q	.24	.56	1.37	2.66	2.38	1.29	.21	.06	.14	1.83	1.01	.92	12.67
Normal P	2.72	2.11	3.06	4.57	4.69	4.59	2.66	3.39	3.86	4.33	3.05	2.43	41.46

**Notes:** # Station discontinued Sept. 22, 1947. √ Estimated. \* Partially estimated. \*\* Does not include part year amounts for 1939 and 1947. Normal P based on USDC Weather Bureau Normal Precipitation at Muskogee, Oklahoma. Quality of records: P - good 1939-43, fair 1944-47; Q - good 1939-43, poor 1945, fair 1944, 1946-47.

LOCATION: Muskogee Co., Oklahoma; 4 1/2 mi. W. of Muskogee; Arkansas River Basin.

AREA: 65.4 ac.

SHAPE: Very roughly rectangular, about 1500 ft. wide by 1700 ft. long.

SLOPES: 100% is in 1-3% class. Aspect E.

SOILS: Prairie Soils; topsoil - medium textured, granular structure, moderately permeable, moderately deep to shallow (14-26 inches); subsoil - heavy plastic clay, slow internal drainage above slowly permeable clay. Dennis silt loam 73%. Parsons silt loam 25%. Collinsville stony very fine sandy loam 2%.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 98%; IV - 2%.

SURFACE DRAINAGE: Good, length of principal waterway 1700 ft.; area is a terraced part of a field that drains into one terrace outlet channel in a natural depression.

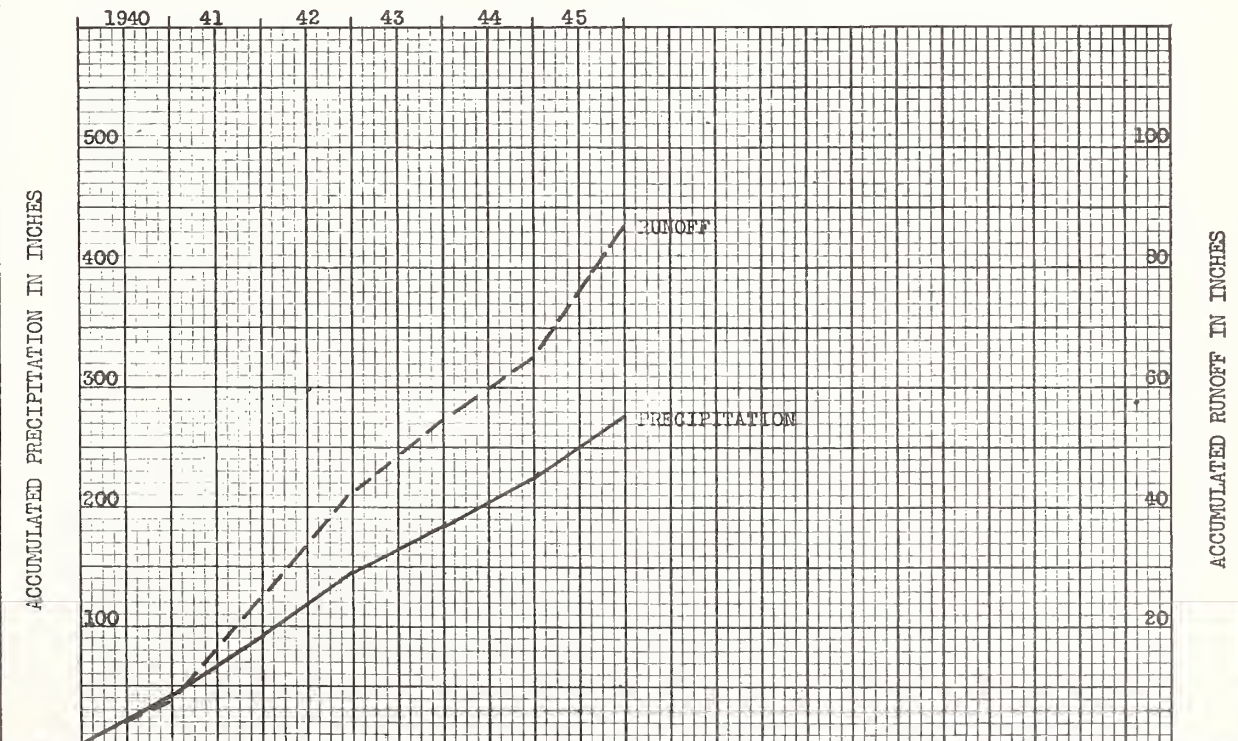
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - V-notch broadcrested concrete weir with 5:1 side slopes, 6 hr. chart; precipitation - two recording raingages, 12 hr. charts.

WATERSHED CONDITIONS: Eroded cultivated land, terraced prior to 1939. Cropping system 1939-1945 consisting of cotton, corn, oats, sorghum and 10 ac. lespedeza in 1944. Crop residue was grazed, generally, maintaining a poor cover condition.

GENERALLY REPRESENTS: Moderately eroded cultivated land in the Central Claypan Area of eastern Oklahoma, southeastern Kansas and western Missouri with terraces and ordinary cropping practices and very little terrace maintenance.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Muskogee, Oklahoma, Watershed W-II

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P				2.03	5.71	4.30	2.19	2.32	0.05	2.76	1.71	1.24	22.31
Q				0	.45	.09	0	0	0	.02	0	0	.56
1940 P	0.54	2.44	1.38	6.77	1.37	3.26	5.07	4.99	2.77	1.58	7.95	2.56	40.68
Q	0	.02	.03	1.23	T	.12	2.05	1.50	.12	.02	2.39	.17	7.65
1941 P	2.98	2.45	.48	7.01	.83	5.21	2.57	3.72	4.79	16.62	2.43	1.85	50.94
Q	.90	.67	0	2.66	.02	1.25	.06	.28	.40	9.45	1.19	.24	17.12
1942 P	.44	1.77	.71	10.04	5.07	7.49	2.46	6.59	4.91	4.81	6.07	3.40	53.76
Q	.01	.13	0	4.84	2.60	2.28	.38	1.38	.29	1.19	2.78	1.92	18.10
1943 P	0	.77	3.14	1.44	14.94	4.64	.25	1.68	4.79	3.64	.14	3.34	38.77
Q	0	.03	.31	.05	9.53	1.59	0	0	.31	.31	0	.12	12.25
1944 P	1.24	3.57	5.08	3.40	4.42	6.11	4.20	5.34	2.43	4.38	2.43	1.58	44.18
Q	.08	.80	3.24	.56	1.07	2.13	.30	.66	.20	.95	.04	.05	10.08
1945 P	1.12	5.19	7.69	11.42	2.42	8.38	1.10	1.54	8.10	.92	.85	.32	49.05
Q	.01	1.95*	7.98*	8.56	.22	2.87	.11	0	.83	.02	.03	0	22.58*
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**Av. P	1.05	2.70	3.08	6.68	4.84	5.85	2.61	3.98	4.63	5.32	3.31	2.18	46.23
**Av. C	.17	.65	1.93	2.98	2.24	1.71	.48	.64	.36	1.99	1.07	.42	14.64
Normal P	2.72	2.11	3.06	4.57	4.69	4.59	2.66	3.39	3.86	4.33	3.05	2.43	41.46

**Notes:** # Station discontinued Sept. 22, 1947, records for 1946 and 1947 not usable for volume of flow. \* Partially estimated. \*\* Does not include part year amount for 1939. Normal P based on USDC Weather Bureau Normal Precipitation at Muskogee, Oklahoma. Quality of records: P - good 1939-43, fair 1944-45; Q - good 1939, fair 1940, 1943, and 1944, poor 1941, 1942 and 1945.



LOCATION: Muskogee Co., Oklahoma; 6 mi. SW of Muskogee; Arkansas River Basin.

AREA: 24.9 ac.

SHAPE: Very roughly rectangular, about 600 ft. wide by 1800 ft. long.

SLOPES: 44% is in 3-5% class; 56% in 12-20%. Aspect E.

SOILS: Prairie Soils; topsoil - medium textured, weak structure, shallow (4-16 inches); subsoil - clay or clay mixed with shale or sandstone fragments, generally friable, internal drainage slow due to impervious bedrock, sandstone or shale 4-30 inches below surface. Collinsville stony loam 17%; rough broken lands, Collinsville soil material 54%; Talihina stony clay 2%; Dennis silt loam 27%.

EROSION: 1 - 100%.

LAND CAPABILITY: VI - 74%; III - 26%.

SURFACE DRAINAGE: Good, length of principal waterway 1950 ft.; area is natural watershed.

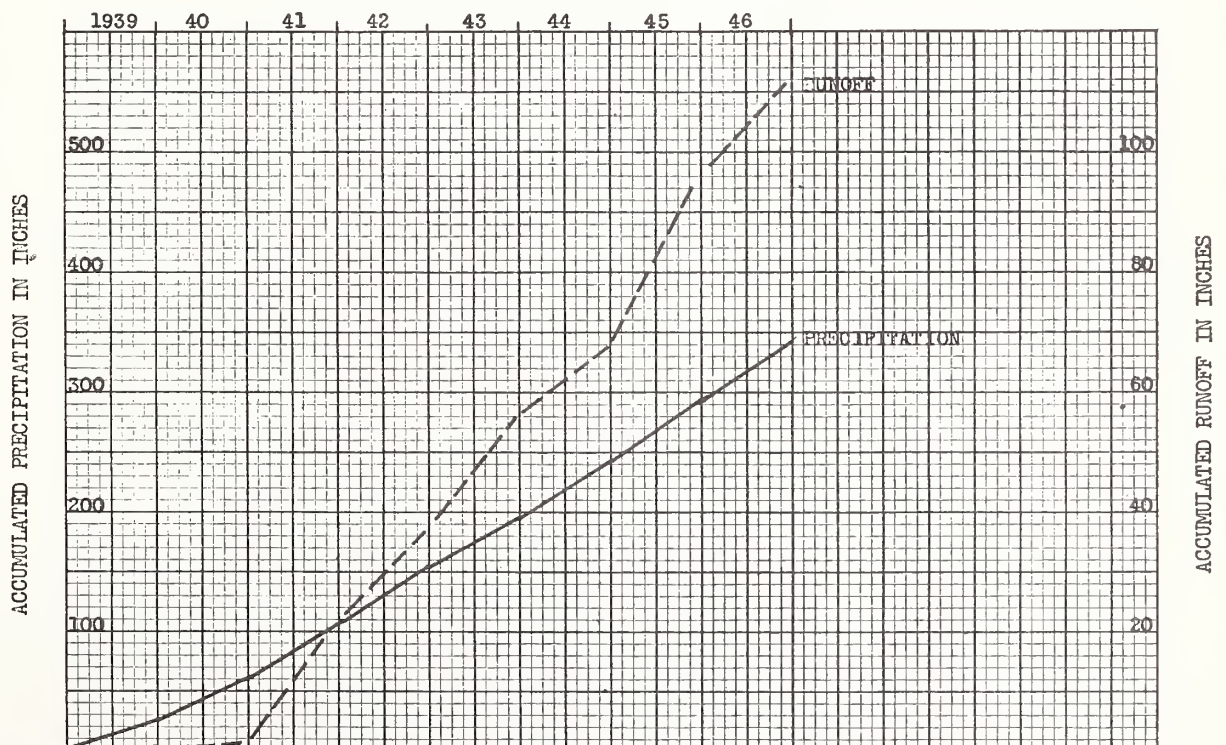
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - V-notch concrete weir with 3:1 side slopes, 6 hr. chart; precipitation - two recording gages, 12 hr. chart and 192 hr. chart.

WATERSHED CONDITIONS: Prior to 1938 - native hay and pasture; 1938-1947 lower 8.3 ac. maintained as meadow and upper 16.6 ac. maintained as native pasture. Meadow hay was harvested once and sometimes twice during each year. Pasture was grazed and periodically rested. Meadow was grazed during winter. The cover varied from poor to good (good 1938-43 and poor to fair 1944-46).

GENERALLY REPRESENTS: Native hay and pasture land in the Central Claypan Area in eastern Oklahoma southeastern Kansas and western Missouri.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oklahoma Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Muskogee, Oklahoma, Watershed W-14

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P										0.76	2.18	0.52	3.76
Q										0	.02	0	.02
1939 P	2.35	2.30	1.09	2.18	4.21	4.17	.72	1.76	0	3.58	2.92	1.16	26.44
Q	0	T	0	.01	.04	.03	0	T	T	.04	0	T	.12
1940 P	.13	2.12	.96	6.63	1.52	2.26	4.04	5.00	2.00	1.17	6.14	2.18	35.05
Q	0	T	0	.68	0	0	.04	.04	.01	.01	.38	.47*	1.63*
1941 P	2.16	2.45	.32	5.65	.61	5.02	2.04	3.02	3.91	17.70	2.64	2.11	47.93
Q	1.95*	2.08*	.25	2.14	.10	.22	0	.01	.02	10.54	1.94	1.08*	20.33*
1942 P	.88	1.87	.95	8.96	4.66	5.61	2.77	3.87	4.31	5.36	4.77	3.50	47.51
Q	.32*	1.22*	.21	5.10	1.92	.40	.08	0	.01	.37	3.47	2.38	15.78*
1943 P	0	.84	2.99	1.29	15.73✓	5.21	1.88	1.89	4.11	3.55	.14	3.22	40.88*
Q	.15	.22	2.07	.36	13.14	2.35	0	0	T	T	0	T	18.59
1944 P	1.29	3.53	5.24	3.41	4.82	4.75	4.06	4.09	2.06	5.69	4.23	1.52	44.69
Q	.03*	1.33✓	4.85✓	.56✓	2.19✓	.55	T	.01	T	.63	.41	.70*	11.56*
1945 P	1.13	4.47	7.63	13.91	2.28	8.04	4.22	2.09	8.03	1.17	.81	.31	54.09
Q	.86✓	2.11✓	✓7.20*	12.91*	.33*	2.66*	.55*	T	1.06	.67*	.01	0	28.36*
1946 P	3.95	3.01	2.24	4.72	7.66	4.17	1.31	2.00	1.12	1.25	7.15	6.58	45.16
Q	2.14*	2.10*	.99*	1.22*	3.75*	.51	.05	0	0	0	.38*	4.68*	16.12*
1947 P	.50	.04	1.12	5.50	7.14	7.92	1.19	.21	#				24.22
Q	.12*	0	.25*	3.29*	4.74*	2.64*	0	0	#				11.04*
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*Av. P	1.56	2.57	2.68	5.84	5.19	4.94	2.63	2.96	3.20	4.97	3.64	2.57	42.75
**Av. Q	.72	1.17	1.95	2.91	2.76	.84	.09	.01	.14	1.53	.82	1.16	14.10
Normal P	2.72	2.11	3.06	4.57	4.69	4.59	2.66	3.39	3.86	4.33	3.05	2.43	41.46

**Notes:** # Station discontinued Sept. 22, 1947. ✓ Estimated. \* Partially estimated. \*\* Does not include the part year amounts for 1938 and 1947. Normal P based on USDC Weather Bureau Normal Precipitation at Muskogee, Oklahoma. Quality of records: P - good 1938, fair 1939-47; Q - good 1938-39, fair 1940-43, poor 1944-47.

LOCATION: Noble Co., Okla.; 15 mi. N. of Stillwater; Black Bear Creek, Arkansas River.

AREA: 16.7 ac.

SHAPE: Slender triangle, 750 ft. wide by 1,450 ft. long.

SLOPES: 5% is in 2-4% class; 95% in 4-6%.

SOILS: Residual (Permian red bed); topsoil - fine textured, weak granular structure, 8-14 in. deep; subsoil - very slowly permeable (moderately blocky), internal drainage very slow. Renfrow silty clay loam.

EROSION: 1 - 100%.

LAND CAPABILITY: IV - 100%.

SURFACE DRAINAGE: Good; principal waterway - 1,600 ft.; drainage density - 101 ft. per ac. Area is natural watershed with highway embankment forming E. boundary.

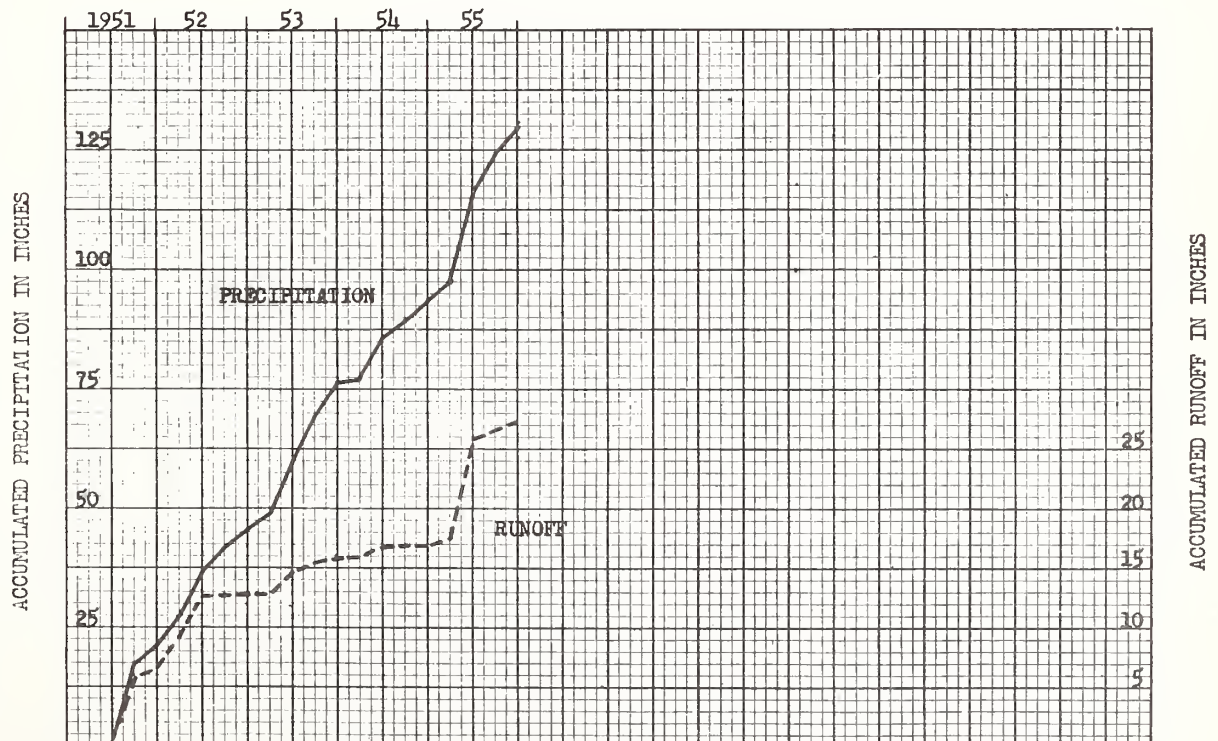
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. by 3 ft. highway culvert equipped with weir sills for low flow measurement, 12 hr. chart; precipitation - recording gage, 24 hr. chart.

WATERSHED CONDITIONS: Range land in native grass never broken; 70% short perennial grass, 25% tall perennial grass, 5% annual grass. Quality and quantity of forage and litter good until June 1952, then gradual deterioration until May 1955 to very low quality and quantity of forage and litter, slow recovery since.

GENERALLY REPRESENTS: Grasslands of the Reddish Prairies which have slow to moderate internal drainage, good surface drainage, in Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF





MONTHLY PRECIPITATION AND RUNOFF (Inches) Stillwater, Okla., Watershed W-1

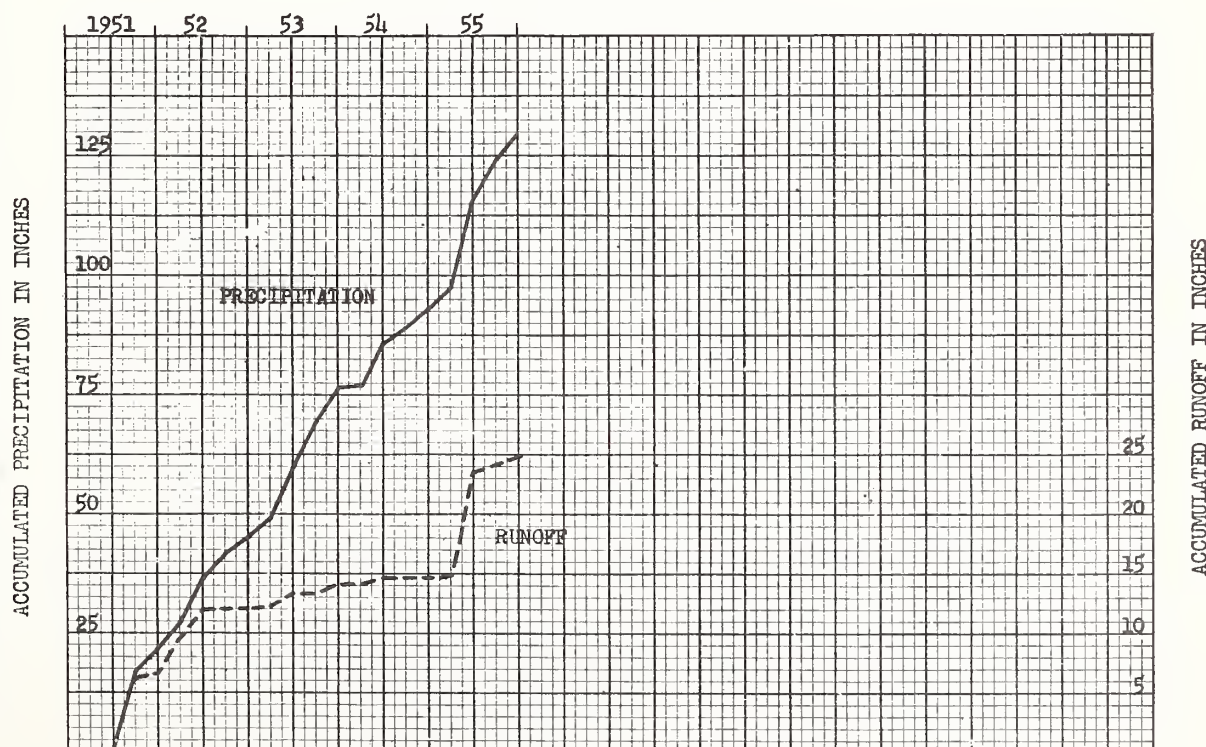
Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1951	P							8.47	2.27	6.41	3.41	1.37	0	21.93
	Q							5.09	0	.64	.25	.56	0	6.54
1952	P	0.91	0.99	3.51	2.00	3.77	3.57	2.38	2.63	.13	0	2.12	1.18	23.19
	Q	.10	.35	2.21	.56	.96	1.94	0	0	0	0	0	0	6.12
1953	P	.19	.91	3.06	2.65	3.88	3.69	6.70	.61	2.35	2.57	3.44	1.10	31.15
	Q	0	0	.21	.12	1.61	0	.64	0	0	0	.39	.29	3.26
1954	P	0	.68	.15	2.93	4.20	1.53	.25	2.15	.90	1.87	.33	1.87	16.86
	Q	0	0	0	.09	.73	0	0	0	0	0	0	0	.82
1955	P	.79	1.56	2.29	.62	14.19	3.14	.27	7.34	1.41	4.66	.10	0	36.37
	Q	0	.13	.48	0	8.33	.24	0	.64	0	.72	0	0	10.54
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** Av. P		0.47	1.04	2.25	2.05	6.51	2.98	2.40	3.18	1.20	2.28	1.50	1.04	26.90
** Av. Q		.02	.12	.72	.19	2.91	.54	.16	.16	0	.18	.10	.07	5.17
Normal P		1.13	1.27	2.19	3.81	4.77	4.09	2.68	3.20	3.52	2.98	2.23	1.45	33.32

**Notes:** \*\* Does not include the part year amounts for 1951. Normal P based on 62 yr. record (1893-1954) at Stillwater, Oklahoma.

1-56

STILLWATER, OKLAHOMA Watershed W-3LOCATION: Noble Co., Okla.; 15 mi. N. of Stillwater; Black Bear Creek, Arkansas River.AREA: 92.0 ac.SHAPE: Roughly rectangular, about 1,600 ft. wide by 2,500 ft. long.SLOPES: 8% is in 0-2% class; 70% in 2-4%; 22% in 4-6%.SOILS: Residual (Permian red bed); topsoil - 92% fine textured, 8% medium textured, weak granular structure, 8-14 in. deep; subsoil - very slowly permeable (moderately blocky); internal drainage very slow. 92% Renfrow silty clay loam, 8% Miller silty clay loam.EROSION: 1 - 68%; 2 - 32%.LAND CAPABILITY: I - 1%; II - 4%; III - 35%; IV - 25%; VII - 35%.SURFACE DRAINAGE: Good; principal waterway - 3,520 ft.; drainage density - 116 ft. per ac.; One pond with 19.7 ac. drainage area, and 1.15 ac. ft. storage. Results corrected for pond effect. Area is natural watershed with highway embankment forming E. boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 4 ft. by 8 ft. wide highway culvert equipped with weir sills for low flow measurement, 12 hr. chart; precipitation - recording gage, 24 hr. chart.WATERSHED CONDITIONS: Range land in native grass never broken; 50% short perennial grass, 40% tall perennial grass, 10% annual grass. Quality and quantity of forage and litter good until June 1952, then gradual deterioration until May 1955 to low quality and quantity of forage and litter, slow recovery since.GENERALLY REPRESENTS: Grasslands of the Reddish Prairies which have slow to moderate internal drainage, good surface drainage, in Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of U.S.D.A. and Oklahoma Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Stillwater, Okla., Watershed W-3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1951 P							8.47	2.27	6.41	3.41	1.37	0	21.93
Q							5.45	0	.75	.09	.30	0	6.59
1952 P	0.91	0.99	3.51	2.00	3.77	3.57	2.38	2.63	.13	0	2.12	1.18	23.19
Q	.18	.28	2.50	.26	.60	1.70	0	0	0	0	0	0	5.52
1953 P	.19	.91	3.06	2.65	3.88	3.69	6.70	.61	2.35	2.57	3.44	1.10	31.15
Q	0	0	.02	.03	1.02	0	.63	0	0	0	.23	.16	2.09
1954 P	0	.68	.15	2.93	4.20	1.53	.25	2.15	.90	1.87	.33	1.87	16.86
Q	0	0	0	0	.49	0	0	0	0	0	0	0	.49
1955 P	.79	1.56	2.29	.62	11.19	3.14	.27	7.34	1.41	4.66	.10	0	36.37
Q	0	.02	.34	0	8.36	.10	0	.69	0	.68	0	0	10.19
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** Av. P	0.47	1.04	2.25	2.05	6.51	2.98	2.40	3.18	1.20	2.28	1.50	1.04	26.90
** Av. Q	.04	.08	.72	.07	2.62	.45	.16	.17	0	.17	.06	.04	4.58
Normal P	1.13	1.27	2.19	3.81	4.77	4.09	2.68	3.20	3.52	2.98	2.23	1.45	33.32

**Notes:** \*\* Does not include the part year amounts for 1951. Normal P based on 62 yr. record (1893-1954) at Stillwater, Oklahoma.



1-56

## STILLWATER, OKLAHOMA Watershed W-4

LOCATION: Noble Co., Okla.; 15 mi. N. of Stillwater; Black Bear Creek, Arkansas River.

AREA: 206 ac.

SHAPE: Roughly rectangular, 2,000 ft. wide by 4,800 ft. long.

SLOPES: 26% is in 0-3% class; 33% in 3-5%; 6% in 5-7%; 1% in 7-10%; 34% is over 10%.

SOILS: Residual (Permian red bed); topsoil - 43% medium textured, weak structure, 24% fine textured, weakly granular, balance rough broken land, 67% deep (8-12 in.), 33% shallow (2-4 in.); subsoil - slow to very slowly permeable with 24% permeable, internal drainage very slow except for 24% in the moderate range. Albion loam, Gowen silty clay loam, Kirkland silt loam, Lucien very fine sandy loam, Norge silt loam, Renfrow silty clay loam, Renfrow silt loam, rough broken land Vernon soil material.

EROSION: 1 - 67%; 2 - 33%.

LAND CAPABILITY: I - 8%; II - 7% III - 42%; IV - 8%; VII - 35%.

SURFACE DRAINAGE: Good; principal waterway - 1.25 mi.; drainage density - 95 ft. per ac.; 3 ponds with drainage area of 41 ac. and total storage of 5.84 ac. ft. Results corrected for pond effect. Area is natural watershed with highway embankment forming E. boundary.

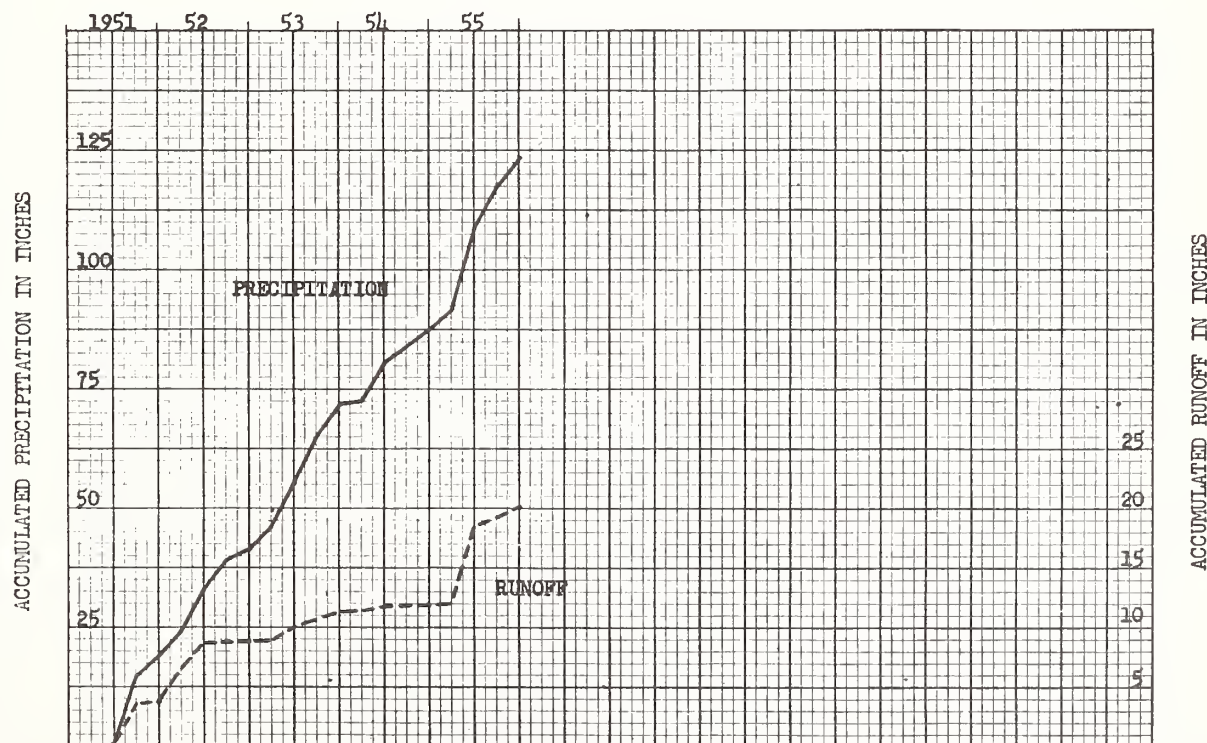
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - Twin barrel 4 ft. by 8 ft. wide highway culvert equipped with weir sills for low flow measurement, 12 hr. chart; precipitation - recording gage, 24 hr. chart.

WATERSHED CONDITIONS: Range land in native grass, small part once cultivated but now in grass, 36 ac. mowed annually for hay, balance is pasture; 30% short perennial grass, 50% tall perennial grass, 20% annual grass. Quality and quantity of forage and litter very good until June 1952, then gradual deterioration until May 1955 to fair quality and quantity of forage and litter, slow recovery since.

GENERALLY REPRESENTS: Grasslands of the Reddish Prairies which have slow to moderate internal drainage, good surface drainage, in Oklahoma, Kansas, and Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of U.S.D.A. and Oklahoma Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Stillwater, Okla., Watershed W-4

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1951	P							7.13	1.79	5.71	2.98	1.19	0	18.80
	Q							2.70	.02	.86	.12	.24	0	3.94
1952	P	1.02	1.00	3.27	2.21	3.37	3.49	2.24	2.85	.13	0	2.13	1.07	22.78
	Q	.34	.29	1.77	.25	.76	1.40	0	.01	0	0	0	0	4.82
1953	P	.17	.79	3.25	2.25	4.15	3.11	6.53	.69	2.40	2.24	3.35	1.19	30.12
	Q	0	0	.11	.05	1.04	.05	.56	0	.04	0	.37	.18	2.40
1954	P	0	.66	.17	2.94	3.86	1.23	.18	2.20	.80	1.98	.23	1.46	15.71
	Q	0	0	0	.06	.54	0	0	0	0	0	0	0	.60
1955	P	.83	1.62	2.00	.89	13.38	2.44	.26	7.37	1.62	5.04	T	0	35.45
	Q	.01	.04	.20	0	6.39	.09	0	.70	0	.91	0	0	8.34
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** Av. P		.50	1.02	2.17	2.07	6.19	2.57	2.30	3.28	1.24	2.32	1.43	.93	26.02
** Av. Q		.09	.08	.52	.09	2.18	.38	.14	.18	.01	.23	.09	.04	4.03
Normal P		1.13	1.27	2.19	3.81	4.77	4.09	2.68	3.20	3.52	2.98	2.23	1.45	33.32

**Notes:** \*\* Does not include the part year amounts for 1951. Normal P based on 62 year record (1893-1954) at Stillwater, Oklahoma.

10-56

GARLAND, TEXAS Watershed W-I

LOCATION: Dallas Co., Texas; 5.6 mi. S. of Garland; Trinity River Basin.

AREA: 25.0 ac.

SHAPE: Triangular, outlet in the center of the long side, about 900 ft. wide and 2100 ft. long.

SLOPES: 90% is in 0-1% class; 10% in 1-3%. Aspect S.

SOILS: Deep, fine textured, slowly permeable, granular and crumbly when dry, sticky and plastic when wet; internal drainage is slow; 25 to 64 inches deep and underlain by yellow marl. This soil shrinks when dry and develops wide, deep cracks. Bell clay - 100%.

EROSION: 2 - 90%; 3 - 10%.

LAND CAPABILITY: I - 90%; II - 10%.

SURFACE DRAINAGE: Good; no well defined waterway, drainage by poorly defined field gullies and rills; concentrated by two diversion terraces - 1720 ft. and 1050 ft. long.

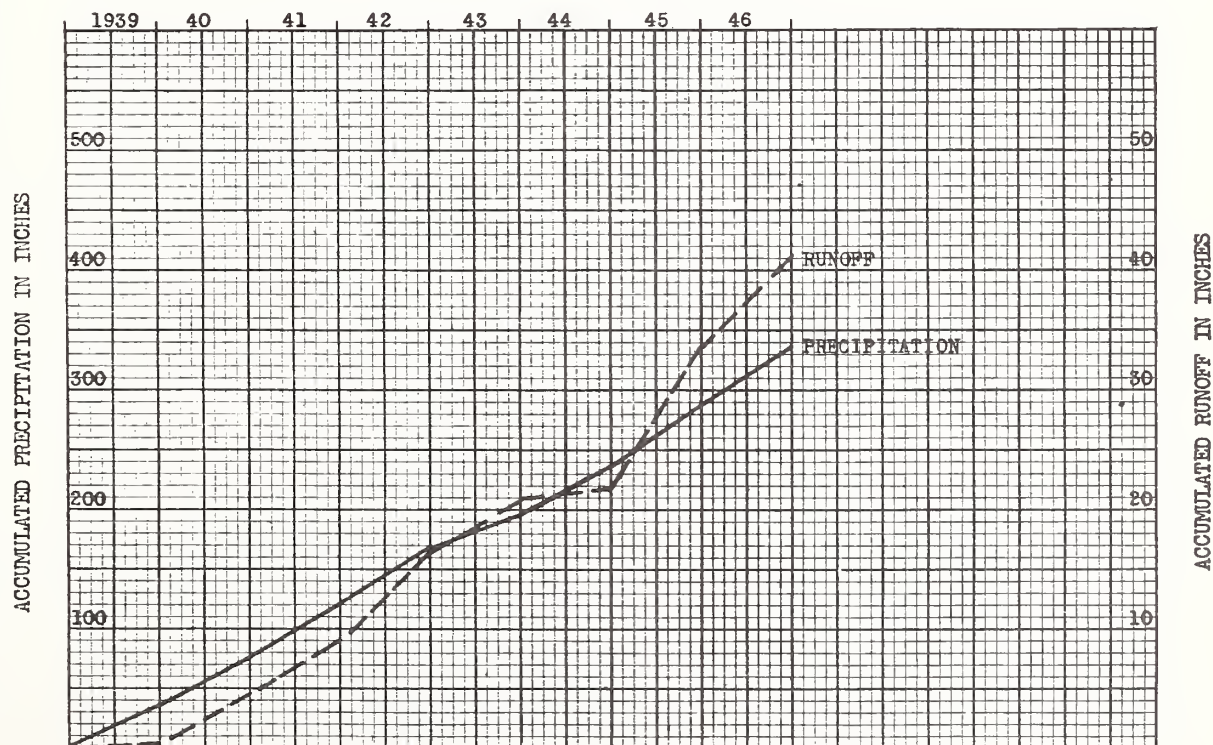
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested V-notch weir with 3:1 side slopes, 6 hr. chart; precipitation - standard and recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Slope length above diversion terraces approximately equal to two terrace intervals. This area was farmed on the contour and crops planted in strips or bands. Approximately 1/3 in close growing crops (alfalfa and small grain), and 2/3 in row crops (cotton and corn). A fair cover was maintained (no burning or grazing of crop residue).

GENERALLY REPRESENTS: Short, gentle slopes, cultivated on the contour with 1/3 planted to close growing crops in the northern part of the Blacklands in the Coastal Plains of Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



## Garland, Texas. Watershed W-1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q									0.73 0	0.22 0	1.87 0	1.44 0	4.26 0
1939 P Q	4.11 0	3.96 .08	2.95 .04	2.57 0	3.20 0	5.30 .11	.60 0	1.53 0	.44 0	2.24 0	5.34 0	.89 0	33.13 .23
1940 P Q	.61 0	2.10 0	2.36 .04	6.88 1.49	6.39 .93	2.51 0	2.68 0	1.68 0	.31 0	1.94 0	6.72 .02	6.59 1.68	40.77 4.16
1941 P Q	.91 0	2.91 .01	2.68 .08	4.86 .19	3.83 .06	10.80 2.87	2.78 .04	6.37 .35	1.09 0	7.37 .56	1.14 0	2.50 0	47.24 4.16
1942 P Q	1.37 0	.93 0	1.79 0	12.66 5.03	6.01 1.72	5.29 .56	.14 0	1.48 0	3.61 0	6.31 .09	2.82 0	3.35 .09	45.76 7.49
1943 P Q	.47 0	.77 0	4.51 .38	1.12 0	5.94 .44	9.23 3.63	.04 0	0 0	3.08 0	.48 0	.35 0	3.24 0	29.23 4.45
1944 P Q	2.46 0	4.08 0	4.10 .12	3.87 0	6.94 .91	.43 0	2.59 0	2.38 0	.60 0	1.80 0	4.70 0	4.72 .04	38.67 1.07
1945 P Q	1.61 0	6.51 1.55	10.20 4.86	4.58 .93	2.46 .07	7.32 1.76	9.14 2.32	.55 0	2.06 0	5.17 .28	3.02 .23	.70 0	53.32 12.00
1946 P Q	3.59 0	4.88 .49	2.32 0	2.52 0	10.43 2.62	1.51 0	.67 0	4.54 0	1.14 0	1.95 0	12.90 3.49	3.36 .69	49.81 7.29
1947 P Q	2.23 0	.47 0	2.32 0	3.99 .05	2.11 0	3.48 .02	0 0	2.28 0	# #				16.88 .07
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	1.89 0	3.27 .27	3.86 .69	4.88 .96	5.65 .84	5.30 1.12	2.33 .30	2.32 .04	1.54 0	3.41 .12	4.62 .47	3.17 .31	42.24 5.12
Normal P	2.47	2.62	2.81	3.87	4.97	3.45	1.97	1.83	2.71	2.67	2.43	2.62	34.42

Notes: # Station discontinued September 29, 1947. \*\* Does not include part year amounts for 1938 and 1947. Quality of records: P - good 1938-1940, fair 1941-1947; Q - good 1938-1940, fair 1941-1944, 46, 47, poor 1945. Normal P based on Dallas, Texas Weather Bureau Normal.

LOCATION: Dallas Co., Texas; 5.1 mi. S. of Garland; Trinity River Basin.

AREA: 10.4 ac.

SHAPE: Roughly rectangular, 500 ft. wide and 840 ft. long.

SLOPES: 14% is in 1-3% class; 43% in 3-5%; 23% in 5-8%; 20% in 8-12%. Aspect E.

SOILS: Deep, fine textured, slowly permeable, mellow and crumbly when dry and sticky when wet, internal drainage is slow; heavy waxy subsoil; 25 to 45 inches deep and underlain by mottled yellow and gray Taylor Marl which is very slowly permeable. These soils when dry, develop deep wide cracks. Houston clay 98%; Houston black clay 2%.

EROSION: 1 - 14%; 2 - 43%; 3 - 23%; 4 - 20%.

LAND CAPABILITY: II - 14%; III - 43%; IV - 23%; VII - 20%.

SURFACE DRAINAGE: Good; three well defined drains combine into one drain; length of principal waterway 900 ft. parallel to south side. Primarily a natural watershed with short diversions perpendicular to main drain.

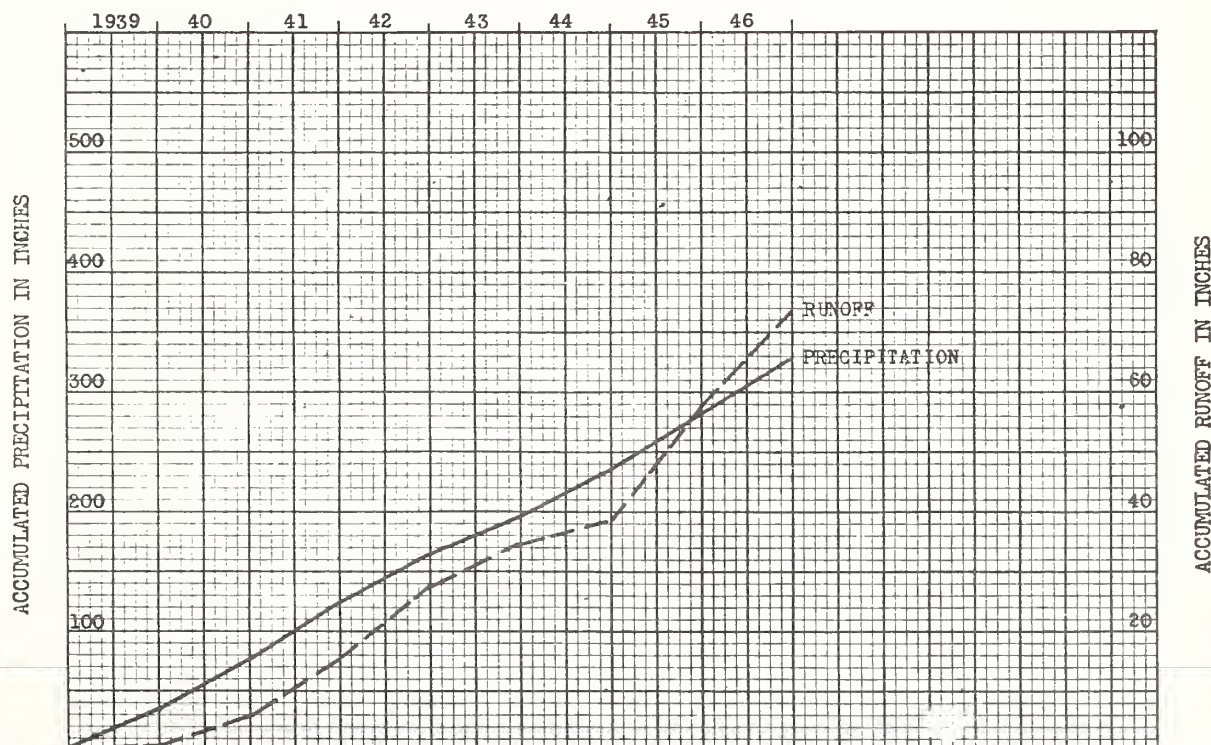
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested V-notch weir with 3:1 side slopes, 6 hr. chart; precipitation - standard and recording gage, 12 hr. chart.

WATERSHED CONDITIONS: 85% native grass meadow part or all being burned nearly every spring and hay harvested every fall, maintaining a fair cover that varied from poor in the spring to good in the late summer just before harvesting hay; 7% of the area was fair Johnson grass meadow in 1940 and 41, in 1942 - 47 this area was farmed to cotton and corn maintaining a poor cover; 8% was native pasture that was grazed maintaining a poor to fair cover.

GENERALLY REPRESENTS: Native meadow in poor condition on steep slopes in the northern portion of the Blacklands in the Coastal Plains of Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

## Garland, Texas, Watershed W-III

Notes: # Station discontinued September 29, 1947. \*\* Does not include part year amounts for 1938 and 1947. Quality of records: P - fair; Q - good 1938-1940, fair 1941-1944, poor 1945-1947. Normal P based on Dallas, Texas Weather Bureau Normal.



LOCATION: Dallas Co., Texas; 5.8 mi. S. of Garland; Trinity River Basin.

AREA: 16.2 ac.

SHAPE: Roughly rectangular, 850 ft. wide and 720 ft. long.

SLOPES: 28% is in 1-3% class; 43% in 3-5%; 29% in 5-8%. Aspect NW.

SOILS: Deep, fine textured, slowly permeable, mellow and crumbly when dry and sticky when wet, internal drainage is slow; heavy, waxy subsoil; 30 to 70 inches deep underlain by mottled yellow and gray Taylor Marl which is very slowly permeable, when dry these soils develop deep wide cracks. Houston Clay 71%; Houston Black Clay 29%.

EROSION: 2 - 5%; 3 - 15%; 4 - 80%.

LAND CAPABILITY: II - 20%; IV - 51%; VII - 29%.

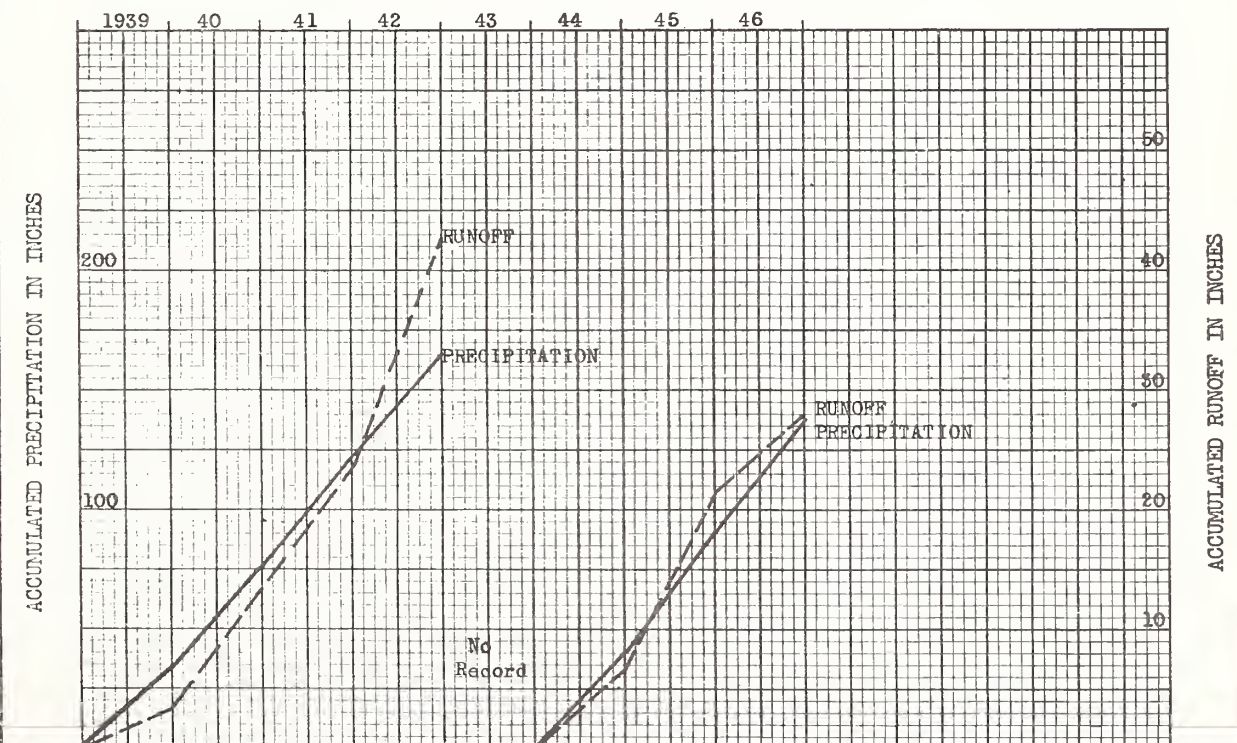
SURFACE DRAINAGE: Good; well defined drain with rills and gullies, road across the slope diverts water to main drain (part of the runoff above the road was occasionally diverted out of the watershed by rows). Natural watershed with short diversions perpendicular to main drain at the station; length of principal waterway - 1200 ft.

INSTRUMENTATION: Runoff - broadcrested V-notch weir with 3:1 side slopes, 6 hr. chart; precipitation - standard and recording gage, 12 hr. chart.

WATERSHED CONDITIONS: Row crop farming with straight rows (cotton, corn, and peas) 1938-1940. 1941-1942 cotton, corn, and oats. In 1943 lower 2/3 was planted to sorghum and Johnson grass, and 1/3 was not farmed. 1944-1947 lower 2/3 was tilled occasionally and grazing crops grown (oats and sudan with Johnson grass) and upper 1/3 was in row crops (sorghum and corn). A fair to poor condition was maintained with a change in crops and farming methods on the lower 2/3 in 1943, namely from row crops to grazing crops.

GENERALLY REPRESENTS: Rolling cultivated land in fair to poor condition with a large portion in grazing crops in the latter years in the northern portion of the Blacklands in the Coastal Plains of Texas.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Garland, Texas, Watershed W-IV

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	2.81 0	4.02 .42	2.79 .56	2.64 .58	3.55 .31	5.82 1.40	0.51 0	1.59 0	0.83 0	2.12 0	4.55 0	0.83 0	32.06 3.27
1940 P Q	.54 0	1.99 0	2.74 .36	6.79 3.11	6.59 1.79	2.33 0	3.23 .08	1.49 0	.30 0	1.88 0	6.44 .64	6.62 3.84	40.94 9.82
1941 P Q	.87 .10	2.93 .38	2.80 .44	5.03 .89	3.77 .62	9.53 4.14	2.85 .13	6.13 .41	1.25 0	7.66 2.79	1.29 .19	2.62 .64	46.73 10.73
1942 P Q	1.15 .09	.99 .07	1.68 .17	12.18 8.11	5.70 4.16	5.21 3.28	.42 0	1.42 0	3.57 .03	6.86 2.77	2.73 .31	3.21 0	45.12 18.99
1943 P Q	.48 √2	.91 √2	4.36 √2	1.39 √2	6.85 √2	8.11 √2	0 √2	0 √2	3.34 √2	.41 √2	.11 √2	3.09 √2	29.05 √2
1944 P Q	2.56 0	3.87 .09	4.34 1.34	3.65 .72	7.59 3.73	.76 0	1.61 0	2.43 0	.74 0	2.09 0	4.76 0	4.51 .48	38.91 6.36
1945 P Q	1.70 .13	6.39 3.70	10.57 7.28	4.52 2.02	2.32 .35	6.10 3.02	8.28 3.52	1.14 0	1.88 0	4.14 .49	2.94 .84	.73 0	50.71 21.35
1946 P Q	3.43 .31	4.68 2.74	2.29 .10	2.04 0	9.67 3.72	1.31 T	.52 0	4.48 0	.78 0	1.83 0	11.13 3.95	3.31 1.68	45.47 12.50
1947 P Q	2.26 .21	.48 0	2.33 .02	3.62 .30	1.80 0	3.43 .10	0 0	2.47 0	# #				16.39 .63
P													
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* Av. P	1.87	3.55	3.89	5.26	5.60	4.44	2.49	2.67	1.34	3.80	4.83	3.12	42.86
** Av. Q	.09	1.06	1.46	2.20	2.10	1.69	.53	.06	0	.86	.85	.95	11.85
Normal P	2.47	2.62	2.81	3.87	4.97	3.45	1.97	1.83	2.71	2.67	2.43	2.62	34.42

Notes: # Station discontinued September 29, 1947. √2 Run-off record not useable. \*\* Does not include part year amount for 1947 and entire year 1943. Quality of records: P - fair; Q - good 1939-40, fair 1941, 44-46, poor 1942, 47. Normal P based on Dallas, Texas Weather Bureau Normal.

**LOCATION:** Dickens Co., Texas; 1 mi. West of Spur; drainage into small lake with no outlet, but within general area of Brazos River Basin.

**AREA:** 11.530 ac.

**SHAPE:** Trapezoid, approximately 500 ft. wide by 1030 ft. long.

**SLOPES:** Average slope 0.6%; maximum slope 1.00%. Aspect S.

**SOILS:** Miles-Abilene clay loam. Miles clay loam profile: 0-8", dark brown clay loam; 8-18", reddish brown heavy clay loam moderately permeable; 18-32", dark reddish brown light clay, slowly permeable; 32-45", red sandy clay, slightly calcareous; 45-62", yellowish red highly calcareous earth. Abilene clay is similar, except dark throughout, less sandy and somewhat heavier, and slightly less permeable.

**EROSION:** 2 - 100%.

in the third horizon.

**LAND CAPABILITY:** II - 100%.

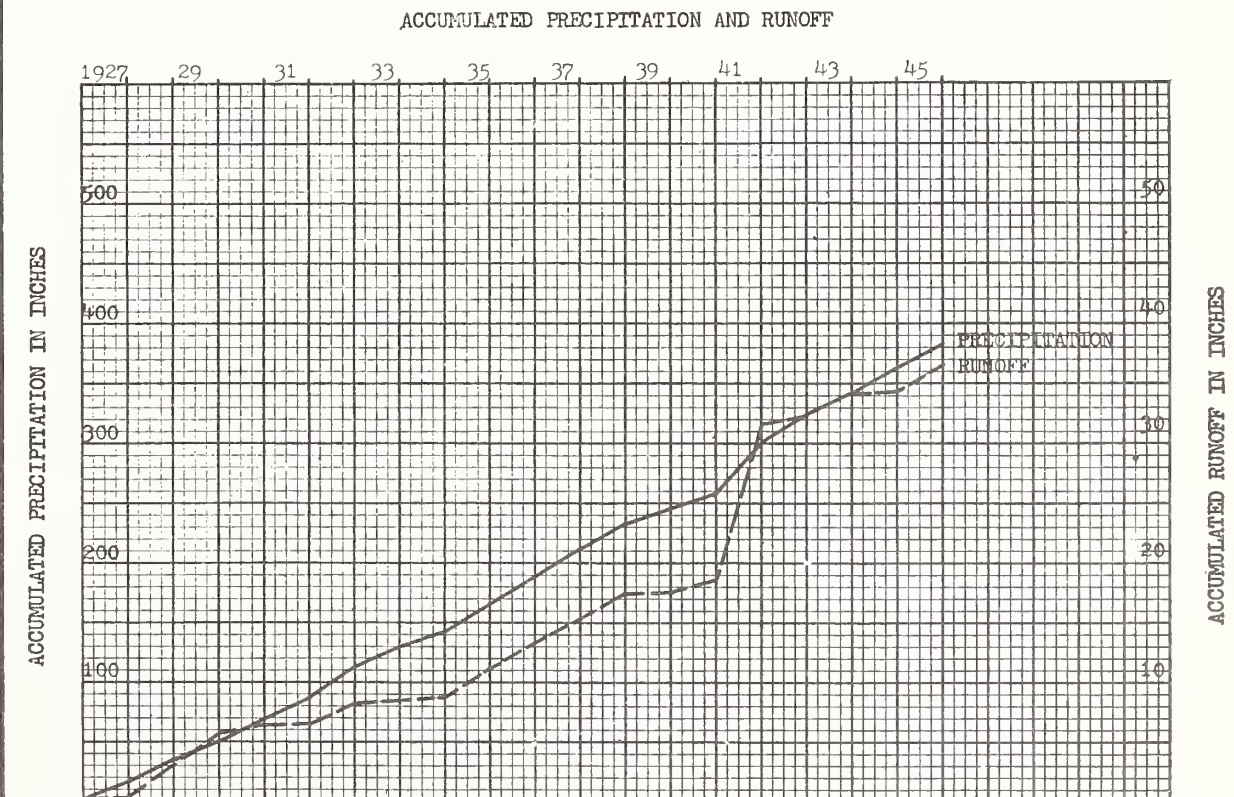
**SURFACE DRAINAGE:** Good; by contour rows approximately parallel to short dimension, water concentrated to weir by diversion at one side of area.

**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - concrete weir with two 90 degree notches with depth of 18 inches, equipped with automatic Au Fuzee waterstage recorder; precipitation - one recording raingage in vicinity of 12 small areas.

**WATERSHED CONDITIONS:** Continuous cotton with contour cultivation. The area was put into cultivation in 1909.

**GENERALLY REPRESENTS:** Rowcropped areas with contour rows in the Red Plains of Kansas, Oklahoma, and Texas with rather large bodies of land that are nearly flat, undulating to gently sloping.



Cooperative research project of USDA and Texas Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Spur, Texas, Watershed 1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1927 P Q	1.10 0	0.26 0	1.06 0	0.40 0	0.66 0	4.56 .17	1.47 0	0.78 0	4.22 .03	1.19 0	0 0	0.42 0	16.12 .20
1928 P Q	.24 0	.96 0	.36 0	.20 0	4.33 .80	1.60 .36	5.15 1.16	3.97 .59	.05 0	1.37 0	1.43 0	.33 0	19.99 2.91
1929 P Q	.27 0	.21 0	1.49 0	.02 0	2.80 .11	1.23 .62	1.17 0	.33 0	3.74 .90	3.07 .85	.40 0	.03 0	14.76 2.48
1930 P Q	.86 0	0 0	.43 0	1.66 0	1.54 .07	1.28 0	.05 0	2.05 .27	.89 0	6.53 .41	.75 0	2.56 .05	18.60 .80
1931 P Q	.79 0	1.62 0	.33 0	2.18 .02	1.22 .04	1.29 .02	1.80 0	1.14 0	0 0	2.53 0	2.42 0	1.14 0	16.46 .08
1932 P Q	1.71 0	2.39 0	0 0	1.91 0	1.43 0	3.38 .80	2.67 .56	5.55 .34	4.24 .07	.58 0	.09 0	3.75 0	27.70 1.77
1933 P Q	.19 0	1.47 0	0 0	.15 0	2.86 .11	0 0	2.51 0	3.32 .13	3.17 .05	.35 0	1.12 0	.45 0	15.59 .29
1934 P Q	.12 0	.21 0	2.20 0	1.16 0	2.50 0	.07 0	.11 0	1.18 0	2.52 .24	.87 0	1.93 0	.01 0	12.88 .24
1935 P Q	.01 0	.61 0	.98 0	.71 0	4.54 .43	6.93 2.15	.99 0	1.05 0	3.62 0	2.22 0	1.50 0	.62 0	23.78 2.58
1936 P Q	1.11 0	0 0	.22 0	2.49 0	2.79 0	1.43 0	2.85 .39	.11 0	11.13 1.58	1.41 0	.48 0	.45 0	24.47 1.97
1937 P Q	.38 0	0 0	2.05 0	.86 0	2.92 .05	1.31 .08	.68 0	6.93 1.89	2.18 .05	2.47 0	.09 0	.41 0	20.28 2.07
1938 P Q	1.14 0	3.31 0	.82 0	.89 0	2.89 0	5.16 1.59	3.30 .50	.21 0	.09 0	1.33 0	.78 0	.04 0	19.96 2.09
1939 P Q	1.98 0	.25 0	.52 0	.29 0	2.07 0	1.80 0	.44 0	1.85 .02	0 0	2.62 .18	.60 0	.64 0	13.06 .20
1940 P Q	.16 0	1.14 0	0 0	1.79 0	1.17 0	1.06 0	.07 0	3.24 .35	.41 0	1.34 .02	3.16 .53	.04 0	13.58 .90
1941 P Q	.88 0	1.64 0	2.04 0	4.17 1.11	6.94 3.69	4.12 1.31	2.94 .52	1.46 0	9.90 5.24	7.90 1.30	.21 0	.67 0	42.87 13.17
1942 P Q	.06 0	.33 0	.31 0	3.67 0	1.63 0	3.44 .68	1.60 0	3.40 0	3.88 0	2.82 0	.17 0	1.79 0	23.10 .68
1943 P Q	.10 0	T 0	.32 0	1.14 0	2.81 0	2.95 .50	5.36 1.14	0 0	2.37 0	.31 0	.80 0	1.64 0	17.80 1.64
1944 P Q	1.77 0	1.78 0	.12 0	.89 0	2.49 0	2.50 .19	2.51 0	2.34 0	1.18 0	1.07 0	1.95 0	2.72 0	21.32 , .19
1945 P Q	.89 0	1.04 0	.34 0	.58 0	.08 0	3.30 .65	4.29 .69	1.78 0	4.27 1.07	2.12 0	.69 0	.21# 0 #	19.59 2.41
Av. P Av. Q	.72 0	.91 0	.72 0	1.32 .06	2.51 .28	2.50 .48	2.10 .26	2.14 .19	3.05 .48	2.22 .15	.98 .03	.94 T	20.11 1.93
Normal P	.55	.76	.85	1.81	2.97	2.53	2.00	2.45	2.72	2.41	.82	.86	20.73

**Notes:** # Station discontinued December 31, 1945. Normal P is 45 year mean (1911-1955) at Texas Substation, #7, Spur, Texas. Quality of records: P - fair; Q - fair.

LOCATION: Dickens Co., Texas; 1 mi. west of Spur; drainage into small lake with no outlet, but within general area of Brazos River Basin.

AREA: 9,386 ac.

SHAPE: Trapezoid, approximately 1200 ft. long by 350 ft. wide.

SLOPES: Average slope 0.5%; maximum slope 0.8%. Aspect S.

SOILS: Miles-Abilene clay loam. Miles clay loam profile: 0-8", dark brown clay loam; 8-18", reddish brown heavy clay loam moderately permeable; 18-32", dark reddish brown light clay, slowly permeable; 32-45", red sandy clay, slightly calcareous; 45-62", yellowish red highly calcareous earth. Abilene clay is similar, except dark throughout, less sandy and somewhat heavier, and slightly less permeable in the third horizon.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

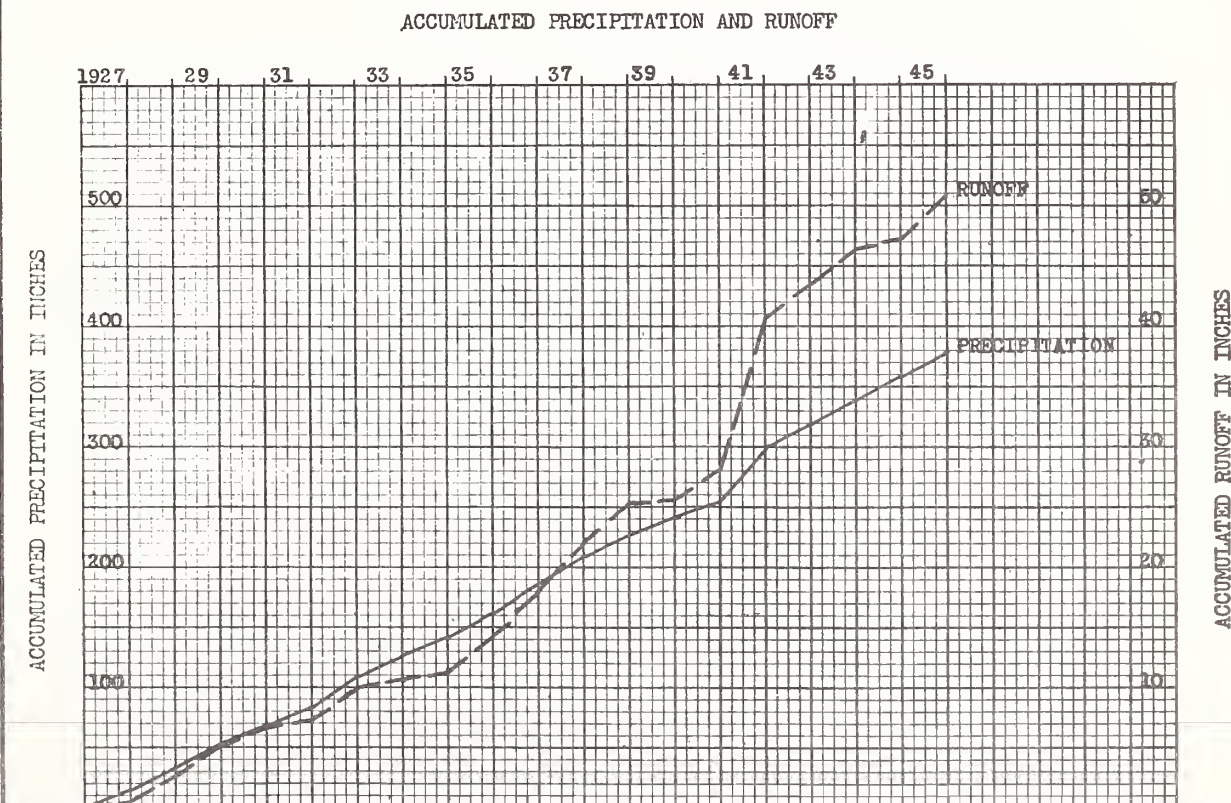
SURFACE DRAINAGE: Good; with rows parallel to long dimension of area.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete weir with two 90 degree notches, with depth of 18 inches, equipped with automatic 'Au Fuzee' waterstage recorder; precipitation - one recording raingauge in vicinity of 12 small areas.

WATERSHED CONDITIONS: Continuous cotton, rows up and down slope. The area was put into cultivation in 1909.

GENERALLY REPRESENTS: Row-cropped areas with straight rows in the Red Plains of Kansas, Oklahoma, and Texas with rather large bodies of land that are nearly flat, undulating to gently sloping.



Cooperative research project of USDA and Texas Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Spur, Texas, Watershed 2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1927 P	1.10	0.26	1.06	0.40	0.66	4.56	1.47	0.78	4.22	1.19	0	0.42	16.12
Q	0	0	0	0	0	.38	0	0	.03	0	0	0	.41
1928 P	.24	.96	.36	.20	4.33	1.60	5.15	3.97	.05	1.37	1.43	.33	19.99
Q	0	0	0	0	.78	.20	.90	.45	0	0	0	0	2.33
1929 P	.27	.21	1.49	.02	2.80	1.23	1.17	.33	3.74	3.07	.40	.03	14.76
Q	0	0	0	0	.41	.54	.03	0	.69	1.07	0	0	2.74
1930 P	.86	0	.43	1.66	1.54	1.28	.05	2.05	.89	6.53	.75	2.56	18.60
Q	0	0	0	0	0	.10	0	.25	0	.86	0	.27	1.48
1931 P	.79	1.62	.33	2.18	1.22	1.29	1.80	1.14	0	2.53	2.42	1.14	16.46
Q	0	0	0	.02	.17	.05	.03	0	0	0	0	0	.27
1932 P	1.71	2.39	0	1.91	1.43	3.38	2.67	5.55	4.24	.58	.09	3.75	27.70
Q	0	0	0	.08	.06	1.51	.38	.58	.11	0	0	.03	2.75
1933 P	.19	1.47	0	.15	2.86	0	2.51	3.32	3.17	.35	1.12	.45	15.59
Q	0	0	0	0	.32	0	.07	.33	.12	0	0	0	.84
1934 P	.12	.21	2.20	1.16	2.50	.07	.11	1.18	2.52	.87	1.93	.01	12.88
Q	0	0	0	0	.13	0	0	0	.60	0	0	0	.73
1935 P	.01	.61	.98	.71	4.54	6.93	.99	1.05	3.62	2.22	1.50	.62	23.78
Q	0	0	.16	.04	.77	1.81	0	0	.10	0	0	0	2.88
1936 P	1.11	0	.22	2.49	2.79	1.43	2.85	.11	1.13	1.41	.48	.45	24.47
Q	0	0	0	.22	0	0	.72	0	2.84	0	0	0	3.78
1937 P	.38	0	2.05	.86	2.92	1.31	.68	6.93	2.18	2.47	.09	.41	20.28
Q	0	0	0	0	.11	.70	0	3.25	.10	0	0	0	4.16
1938 P	1.14	3.31	.82	.89	2.89	5.16	3.30	.21	.09	1.33	.78	.04	19.96
Q	0	0	0	.19	.11	1.94	.95	0	0	0	0	0	3.19
1939 P	1.98	.25	.52	.29	2.07	1.80	.44	1.85	0	2.62	.60	.64	13.06
Q	0	0	0	0	0	0	0	.05	0	.45	0	0	.50
1940 P	.16	1.14	0	1.79	1.17	1.06	.07	3.24	.41	1.34	3.16	.04	13.58
Q	0	0	0	0	0	0	0	.51	0	.14	1.63	0	2.28
1941 P	.88	1.64	2.04	4.17	6.94	4.12	2.94	1.46	9.90	7.90	.21	.67	42.87
Q	0	0	0	1.34	3.13	1.70	.42	0	4.70	1.31	0	0	12.60
1942 P	.06	.33	.31	3.67	1.63	3.44	1.60	3.40	3.88	2.82	.17	1.79	23.10
Q	0	0	0	0	0	1.09	0	0	.07	1.75	0	0	2.91
1943 P	.10	T	.32	1.14	2.81	2.95	5.36	0	2.37	.31	.80	1.64	17.80
Q	0	0	0	0	0	.74	1.80	0	0	0	0	0	2.54
1944 P	1.77	1.78	.12	.89	2.49	2.50	2.51	2.34	1.18	1.07	1.95	2.72	21.32
Q	0	0	0	0	.05	.80	.13	0	0	0	0	0	.98
1945 P	.89	1.04	.34	.58	.08	3.30	4.29	1.78	4.27	2.12	.69	.21#	19.59
Q	0	0	0	0	0	1.29	.56	0	1.68	0	0	0	3.53
P													
Q													
Av. P	.72	.91	.72	1.32	2.51	2.50	2.10	2.14	3.05	2.22	.98	.94	20.11
Av. Q	0	0	.01	.10	.32	.68	.32	.29	.58	.29	.09	.02	2.70
Normal P	.55	.76	.85	1.81	2.97	2.53	2.00	2.45	2.72	2.41	.82	.86	20.73

Notes: # Station discontinued December 31, 1945. Normal P is 45 year mean (1911-1955) at Texas Substation, #7, Spur, Texas. Quality of records: P - fair; Q - fair.



LOCATION: Dickens Co., Texas; 1 mi. west of Spur; drainage into small lake with no outlet, but within general area of Brazos River Basin.

AREA: 11,711 ac

SHAPE: Rectangle, approximately 900 ft. long by 550 ft. wide.

SLOPES: Average slope 0.9%; maximum slope 1.3%. Aspect S.

SOILS: Miles-Abilene clay loam. Miles clay loam profile: 0-8", dark brown clay loam; 8-18", reddish brown heavy clay loam moderately permeable; 18-32", dark reddish brown light clay, slowly permeable; 32-45", red sandy clay, slightly calcareous; 45-62", yellowish red highly calcareous earth. Abilene clay is similar, except dark throughout, less sandy and somewhat heavier, and slightly less permeable in the third horizon.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good

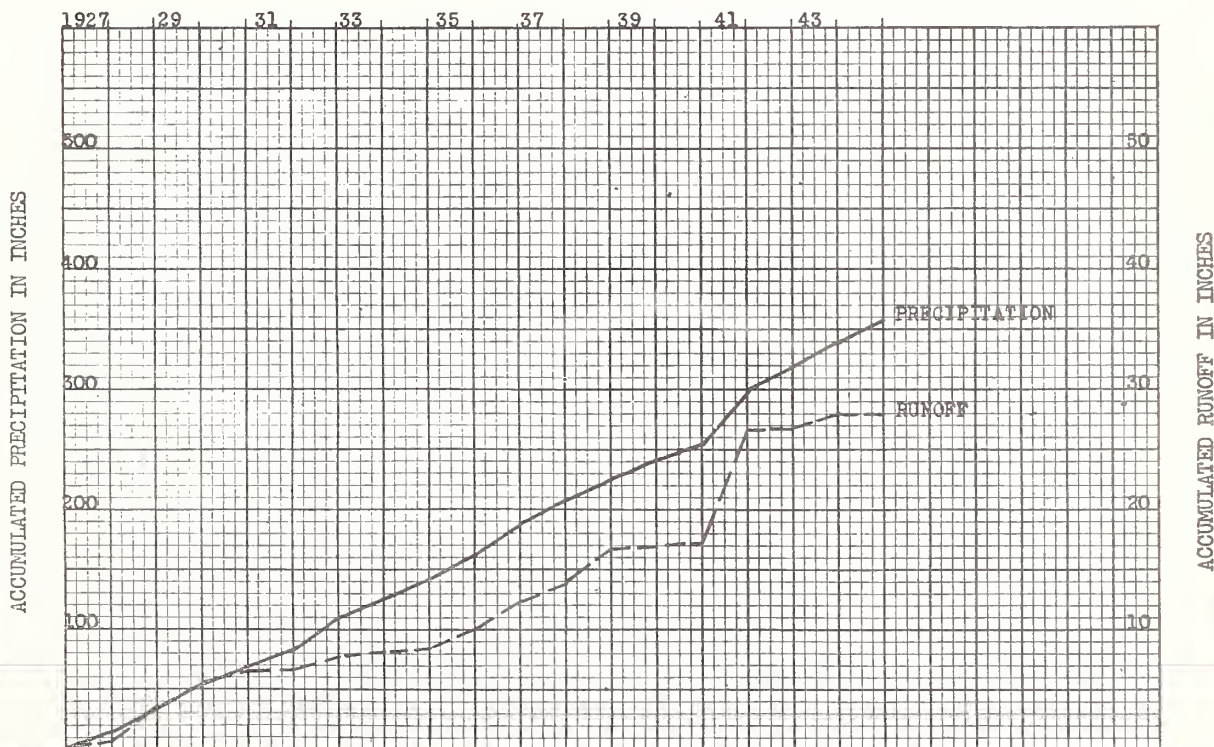
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete weir with two 90 degree notches, with depth of 18 inches, equipped with automatic Au Fuzee waterstage recorder; precipitation - one recording raingauge in vicinity of 12 small areas.

WATERSHED CONDITIONS: Continuous cotton with contour cultivation and level terraces with 1 ft. vertical spacing. The area was put into cultivation in 1909.

GENERALLY REPRESENTS: Cultivated areas with level open end terraces of the Red Plains of Kansas, Oklahoma, and Texas with rather large bodies of land that are nearly flat, undulating to gently sloping.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Spur, Texas, Watershed 3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1927 P	1.10	0.26	1.06	0.40	0.66	4.56	1.47	0.78	4.22	1.19	0	0.42	16.12
Q	0	0	0	0	0	.38	0	0	.09	0	0	0	.47
1928 P	.24	.96	.36	.20	4.33	1.60	5.15	3.97	.05	1.37	1.43	.33	19.99
Q	0	0	0	0	.94	.34	1.04	.47	0	0	0	0	2.79
1929 P	.27	.21	1.49	.02	2.80	1.23	1.17	.33	3.74	3.07	.40	.03	14.76
Q	0	0	0	0	.10	.55	0	0	.95	.77	0	0	2.37
1930 P	.86	0	.43	1.66	1.54	1.28	.05	2.05	.89	6.53	.75	2.56	18.60
Q	0	0	0	0	0	0	0	.05	0	.33	0	.51	.89
1931 P	.79	1.62	.33	2.18	1.22	1.29	1.80	1.14	0	2.53	2.42	1.14	16.46
Q	0	0	0	0	.06	.02	0	0	0	0	0	0	.08
1932 P	1.71	2.39	0	1.91	1.43	3.38	2.67	5.55	4.24	.58	.09	3.75	27.70
Q	0	0	0	0	0	.76	0	.29	.08	0	0	.05	1.18
1933 P	.19	1.47	0	.15	2.86	0	2.51	3.32	3.17	.35	1.12	.45	15.59
Q	0	0	0	0	.16	0	.04	.04	0	0	0	0	.24
1934 P	.12	.21	2.20	1.16	2.50	.07	.11	1.18	2.52	.87	1.93	.01	12.88
Q	0	0	0	0	0	0	0	0	.26	0	0	0	.26
1935 P	.01	.61	.98	.71	4.54	6.93	.99	1.05	3.62	2.22	1.50	.62	23.78
Q	0	0	0	0	.47	1.24	0	0	0	0	0	0	1.71
1936 P	1.11	0	.22	2.49	2.79	1.43	2.85	.11	11.13	1.41	.48	.45	24.47
Q	0	0	0	0	.15	0	.55	0	1.54	0	0	0	2.24
1937 P	.38	0	2.05	.86	2.92	1.31	.68	6.93	2.18	2.47	.09	.41	20.28
Q	0	0	0	0	0	.07	0	1.46	.06	0	0	0	1.59
1938 P	1.14	3.31	.82	.89	2.89	5.16	3.30	.21	.09	1.33	.78	.04	19.96
Q	0	0	0	0	0	2.27	.71	0	0	0	0	0	2.98
1939 P	1.98	.25	.52	.29	2.07	1.80	.44	1.85	0	2.62	.60	.64	13.06
Q	0	0	0	0	0	0	0	0	0	.13	0	0	.13
1940 P	.16	1.14	0	1.79	1.17	1.06	.07	3.24	.41	1.34	3.16	.04	13.58
Q	0	0	0	0	0	0	0	0	0	0	.14	0	.14
1941 P	.88	1.64	2.04	4.17	6.94	4.12	2.94	1.46	9.90	7.90	.21	.67	42.87
Q	0	0	0	.56	3.48	.94	1.12	0	2.89	.74	0	0	9.73
1942 P	.06	.33	.31	3.67	1.63	3.44	1.60	3.40	3.88	2.82	.17	1.79	23.10
Q	0	0	0	0	0	0	0	0	.04	.04	0	0	.08
1943 P	.10	T	.32	1.14	2.81	2.95	5.36	0	2.37	.31	.80	1.64	17.80
Q	0	0	0	0	0	.02	1.07	0	0	0	0	0	1.09
1944 P	1.77	1.78	.12	.89	2.49	2.50	2.51	2.34	1.18	1.07	1.95	2.72	21.32
Q	0	0	0	0	0	T	0	0	0	0	0	0 #	T
P													
Q													
P													
Q													
Av. P	.72	.90	.74	1.37	2.64	2.45	1.98	2.16	2.98	2.22	.99	.98	20.13
Av. Q	0	0	0	.03	.30	.37	.25	.13	.33	.11	.01	.03	1.56
Normal P	.55	.76	.85	1.81	2.97	2.53	2.00	2.45	2.72	2.41	.82	.86	20.73

**Notes:**

\* Station discontinued December 31, 1945. Normal P is 45 year mean (1911-1955) at Texas Substation, #7, Spur, Texas. Quality of records: P - fair; Q - fair.



**LOCATION:** Dickens Co., Texas; 1 mi. west of Spur; drainage into small lake with no outlet, but within general area of Brazos River Basin.

**AREA:** 5.532 ac. 1927-35  
5.807 ac. 1936-38

**SHAPE:** Rectangle, approximately 550 ft. long by 440 ft. wide.

**SLOPES:** Average slope 1.6%; maximum slope 2.0%. Aspect S.

**SOILS:** Miles-Abilene clay loam. Miles clay loam profile: 0-8", dark brown clay loam; 8-18", reddish brown heavy clay loam moderately permeable; 18-32", dark reddish brown light clay, slowly permeable; 32-45", red sandy clay, slightly calcareous; 45-62", yellowish red highly calcareous earth. Abilene clay is similar, except dark throughout, less sandy and somewhat heavier, and slightly less permeable in the third horizon.

**EROSION:** 2 - 100%.

**LAND CAPABILITY:** II - 100%.

**SURFACE DRAINAGE:** Good.

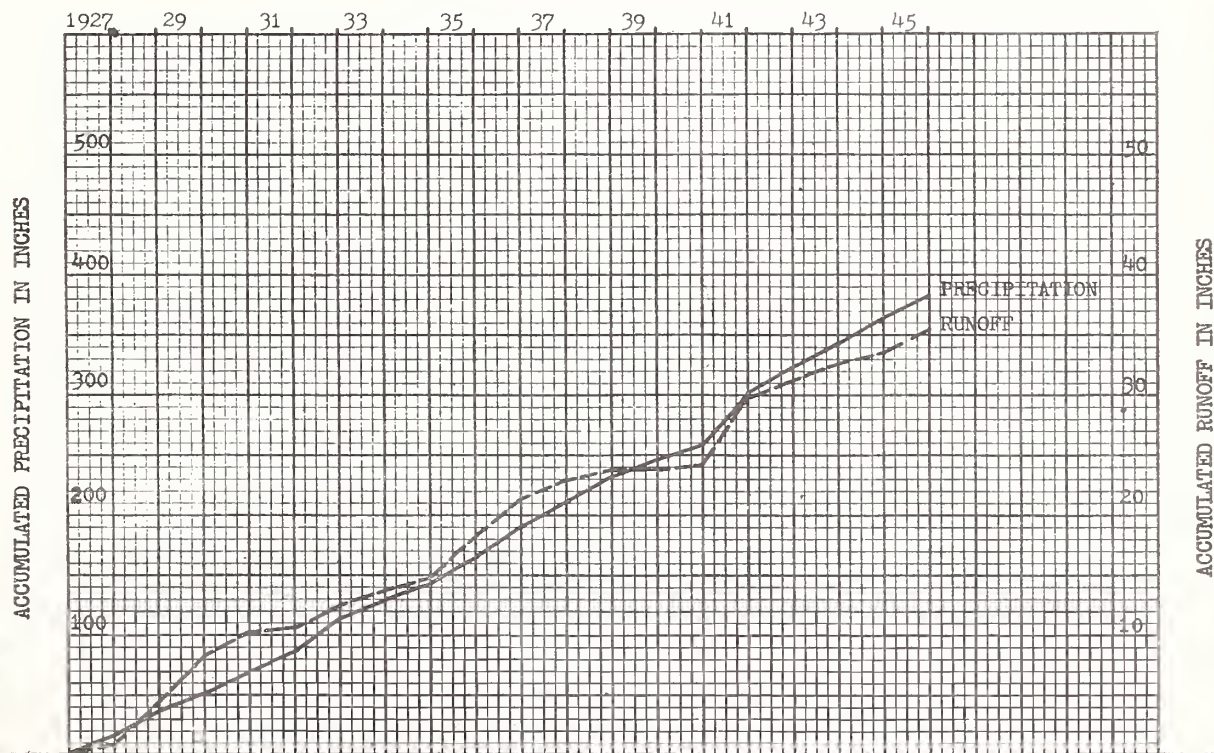
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - concrete weir with two 90 degree notches, with depth of 18 inches, equipped with automatic Au Fuzee waterstage recorder; precipitation - one recording raingauge in vicinity of 12 small areas.

**WATERSHED CONDITIONS:** Row-cropped to cotton with two feet fall between terraces with constant grade of 3 inches per 100 feet, from 1927-35; from 1936-45, treatment was changed to level terraces with one end open. The area was put into cultivation in 1909.

**GENERALLY REPRESENTS:** Cultivated terraced areas in the Red Plains of Kansas, Oklahoma, and Texas with rather large bodies of land that are nearly flat, undulating to gently sloping.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Spur, Texas, Watershed 5

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1927 P Q	1.10 0	0.26 0	1.06 0	0.40 0	0.66 0	4.56 .73	1.47 0	0.78 0	4.22 .21	1.19 0	0 0	0.42 0	16.12 .94
1928 P Q	.24 0	.96 0	.36 0	.20 0	4.33 .57	1.60 .45	5.15 1.81	3.97 .76	.05 0	1.37 0	1.43 0	.33 0	19.99 3.59
1929 P Q	.27 0	.21 0	1.49 0	.02 0	2.80 .14	1.23 .45	1.17 0	.33 0	3.74 1.24	3.07 1.83	.40 0	.03 0	14.76 3.66
1930 P Q	.86 0	0 0	.43 0	1.66 0	1.54 .10	1.28 0	.05 0	2.05 .32	.89 0	6.53 1.02	.75 0	2.56 .68	18.60 2.12
1931 P Q	.79 0	1.62 0	.33 0	2.18 0	1.22 .15	1.29 .07	1.80 0	1.14 0	0 0	2.53 0	2.42 .05	1.14 0	16.46 .27
1932 P Q	1.71 0	2.39 0	0 0	1.91 0	1.43 0	3.38 .81	2.67 .42	5.55 .51	4.24 .18	.58 0	.09 0	3.75 .06	27.70 1.98
1933 P Q	.19 0	1.47 0	0 0	.15 0	2.86 .44	0 0	2.51 .12	3.32 .31	3.17 .24	.35 0	1.12 0	.45 0	15.99 1.11
1934 P Q	.12 0	.21 0	2.20 0	1.16 0	2.50 .09	.07 0	.11 0	1.18 0	2.52 .97	.87 0	1.93 0	.01 0	12.88 1.06
1935 P Q	.01 0	.61 0	.98 .16	.71 .07	4.54 .93	6.93 2.13	.99 0	1.05 0	3.62 .10	2.22 .20	1.50 0	.62 0	23.78 3.59
1936 P Q	1.11 0	0 0	.22 0	2.49 0	2.79 0	1.43 0	2.85 .68	.11 0	11.13 2.36	1.41 0	.48 0	.45 0	24.47 3.04
1937 P Q	.38 0	0 0	2.05 0	.86 0	2.92 0	1.31 0	.68 0	6.93 1.56	2.18 0	2.47 0	.09 0	.41 0	20.28 1.56
1938 P Q	1.14 0	3.31 0	.82 0	.89 0	2.89 0	5.16 .45	3.30 .30	.21 0	.09 0	1.33 0	.78 0	.04 0	19.96 .75
1939 P Q	1.98 0	.25 0	.52 0	.29 0	2.07 0	1.80 0	.44 0	1.85 0	0 0	2.62 .07	.60 0	.64 0	13.06 .07
1940 P Q	.16 0	1.14 0	0 0	1.79 0	1.17 0	1.06 0	.07 0	3.24 .29	.41 0	1.34 0	3.16 .09	.04 0	13.58 .38
1941 P Q	.88 0	1.64 0	2.04 0	4.17 .43	6.94 1.28	4.12 .40	2.94 .16	1.46 0	9.90 3.09	7.90 .31	.21 0	.67 0	42.87 .567
1942 P Q	.06 0	.33 0	.31 0	3.67 0	1.63 0	3.44 .39	1.60 0	3.40 0	3.88 .82	2.82 .34	.17 0	1.79 0	23.10 1.55
1943 P Q	.10 0	T 0	.32 0	1.14 0	2.81 0	2.95 .60	5.36 .93	0 0	2.37 0	.31 0	.80 0	1.64 0	17.80 1.53
1944 P Q	1.77 0	1.78 0	.12 0	.89 0	2.49 0	2.50 .56	2.51 .07	2.34 0	1.18 0	1.07 0	1.95 0	2.72 0	21.32 .63
1945 P Q P Q	.89 0 0 0	1.04 0 0 0	.34 0 0 0	.58 0 0 0	.08 0 0 0	3.30 .36	4.29 .42	1.78 0	4.27 1.14	2.12 0	.69 0	.21# 0 0 0	19.59 1.92
Av. P Av. Q	.72 0	.91 0	.72 .01	1.32 .03	2.51 .19	2.50 .39	2.10 .26	2.14 .20	3.05 .54	2.22 .20	.98 .01	.94 .04	20.11 1.87
Normal P	.55	.76	.85	1.81	2.97	2.53	2.00	2.45	2.72	2.41	.82	.86	20.73

**Notes:** # Station discontinued December 31, 1945. Normal P is 45 year mean (1911-1955) at Texas Substation, #7, Spur, Texas. Quality of records: P - fair; Q - fair.

**LOCATION:** Dickens Co., Texas; 1 mi. west of Spur; drainage into small lake with no outlet but within general area of Brazos River Basin.

**AREA:** 6.044 ac., 1927-Spring 36      **SHAPE:** Rectangle, approximately 550 ft. long by 450 ft. wide.  
5.323 ac., Spring 36-1945.

**SLOPES:** Average slope 1.6%; maximum slope 2.4%. Aspect S.

**SOILS:** Miles-Abilene clay loam. Miles clay loam profile: 0-8", dark brown clay loam; 8-18", reddish brown heavy clay loam moderately permeable; 18-32", dark reddish brown light clay, slowly permeable; 32-45", red sandy clay, slightly calcareous; 45-62", yellowish red highly calcareous earth. Abilene clay is similar, except dark throughout, less sandy and somewhat heavier, and slightly less permeable.

**EROSION:** 2 - 100%.

in the third horizon.

**LAND CAPABILITY:** II - 100%.

**SURFACE DRAINAGE:** Good

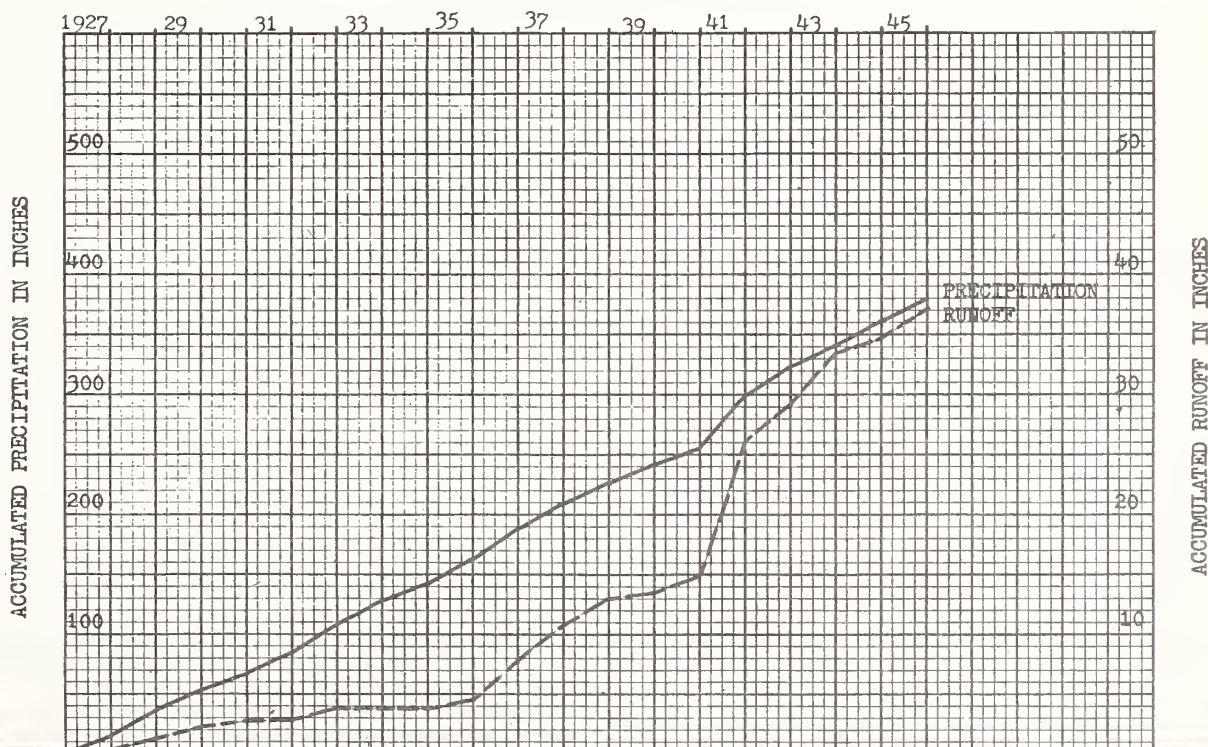
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - concrete weir with two 90 degree v-notch weirs, with depth of 18 inches, equipped with automatic Au Fuzee waterstage recorder; precipitation - one recording raingage in vicinity of 12 small areas.

**WATERSHED CONDITIONS:** Rowcropped continuously to cotton. Level terraces with one end open and 2 ft. vertical spacing 1927-35; graded terraces with 3 inches per 100 ft. fall and same vertical spacing 1936-45. The area was put into cultivation in 1909.

**GENERALLY REPRESENTS:** Cultivated terraced areas of the Red Plains of Kansas, Oklahoma, and Texas with rather large bodies of land that are nearly flat, undulating or gently sloping.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Spur, Texas, Watershed 6**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1927 P Q	1.10 0	0.26 0	1.06 0	0.40 0	0.66 0	4.56 .11	1.47 0	0.78 0	4.22 0	1.19 0	0 0	0.42 0	16.12 .11
1928 P Q	.24 0	.96 0	.36 0	.20 0	4.33 .33	1.60 .08	5.15 .37	3.97 .22	.05 0	1.37 0	1.43 0	.33 0	19.99 1.00
1929 P Q	.27 0	.21 0	1.49 0	.02 0	2.80 0	1.23 .04	1.17 0	.33 0	3.74 .42	3.07 .46	.40 0	.03 0	14.76 .92
1930 P Q	.86 0	0 0	.43 0	1.66 0	1.54 0	1.28 0	.05 0	2.05 .08	.89 0	6.53 .25	.75 0	2.56 .36	18.60 .69
1931 P Q	.79 0	1.62 0	.33 0	2.18 0	1.22 .04	1.29 .01	1.80 0	1.14 0	0 0	2.53 0	2.42 0	1.14 0	16.46 .05
1932 P Q	1.71 0	2.39 0	0 0	1.91 0	1.43 0	3.38 .52	2.67 .21	5.55 .25	4.24 .08	.58 0	.09 0	3.75 .05	27.70 1.11
1933 P Q	.19 0	1.47 0	0 0	.15 0	2.86 0	0 0	2.51 0	3.32 .02	3.17 0	.35 0	1.12 0	.45 0	15.59 .02
1934 P Q	.12 0	.21 0	2.20 0	1.16 0	2.50 0	.07 0	.11 0	1.18 0	2.52 0	.87 0	1.93 0	.01 0	12.88 0
1935 P Q	.01 0	.61 0	.98 0	.71 0	4.54 .09	6.93 .56	.99 0	1.05 0	3.62 0	2.22 .04	1.50 0	.62 0	23.78 .69
1936 P Q	1.11 0	0 0	.22 0	2.49 0	2.79 .39	1.43 0	2.85 .95	.11 0	1.13 1.94	1.41 0	.48 0	.45 0	24.47 3.28
1937 P Q	.38 0	0 0	2.05 0	.86 0	2.92 .37	1.31 .24	.68 0	6.93 2.27	2.18 .11	2.47 0	.09 0	.41 0	20.28 2.99
1938 P Q	1.14 0	3.31 0	.82 0	.89 0	2.89 .10	5.16 1.35	3.30 .71	.21 0	.09 0	1.33 0	.78 0	.04 0	19.96 2.16
1939 P Q	1.98 0	.25 0	.52 0	.29 0	2.07 0	1.80 0	.44 0	1.85 0	0 0	2.62 .42	.60 0	.64 0	13.06 .42
1940 P Q	.16 0	1.14 0	0 0	1.79 0	1.17 0	1.06 0	.07 0	3.24 .56	.41 0	1.34 .74	3.16 .17	.04 0	13.58 1.47
1941 P Q	.88 0	1.64 0	2.04 0	4.17 1.26	6.94 2.34	4.12 1.24	2.94 .48	1.46 0	9.90 4.64	7.90 1.22	.21 0	.67 0	42.87 11.18
1942 P Q	.06 0	.33 0	.31 0	3.67 0	1.63 0	3.44 .94	1.60 0	3.40 0	3.88 1.07	2.82 1.12	.17 0	1.79 0	23.10 3.13
1943 P Q	.10 0	1 0	.32 0	1.14 0	2.81 0	2.95 .68	5.36 3.58	0 0	2.37 .08	.31 0	.80 0	1.64 0	17.80 4.34
1944 P Q	1.77 0	1.78 0	.12 0	.89 0	2.49 0	2.50 .84	2.51 .11	2.34 .05	1.18 0	1.07 0	1.95 0	2.72 .09	21.32 1.09
1945 P Q	.89 0	1.04 0	.34 0	.58 0	.08 0	3.30 .89	4.29 1.04	1.78 0	4.27 1.56	2.12 0	.69 0	.21# 0 #	19.59 3.49
Av. P Av. Q	.72 0	.91 0	.72 0	1.32 .07	2.51 .19	2.50 .39	2.10 .39	2.14 .18	3.05 .52	2.22 .22	.98 .01	.94 .03	20.11 2.00
Normal P	.55	.76	.85	1.81	2.97	2.53	2.00	2.45	2.72	2.41	.82	.86	20.73

**Notes:** # Station discontinued December 31, 1945. Normal P is 45 year mean (1911-1955) at Texas Substation, #7, Spur, Texas. Quality of records: P - fair; Q - fair.



LOCATION: Dickens Co., Texas; 1 mi. west of Spur; drainage into small lake with no outlet, but within general area of Brazos River Basin.

AREA: 8.70 ac.

SHAPE: Rectangle, approximately 1340 ft. long by 280 ft. wide.

SLOPES: 0.8%, almost uniform. Aspect S.

SOILS: Miles-Abilene clay loam. Miles clay loam profile: 0-8", dark brown clay loam; 8-18", reddish brown heavy clay loam moderately permeable; 18-32", dark reddish brown light clay, slowly permeable; 32-45", red sandy clay, slightly calcareous; 45-62", yellowish red highly calcareous earth. Abilene clay is similar, except dark throughout, less sandy and somewhat heavier, and slightly less permeable in the third horizon.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good

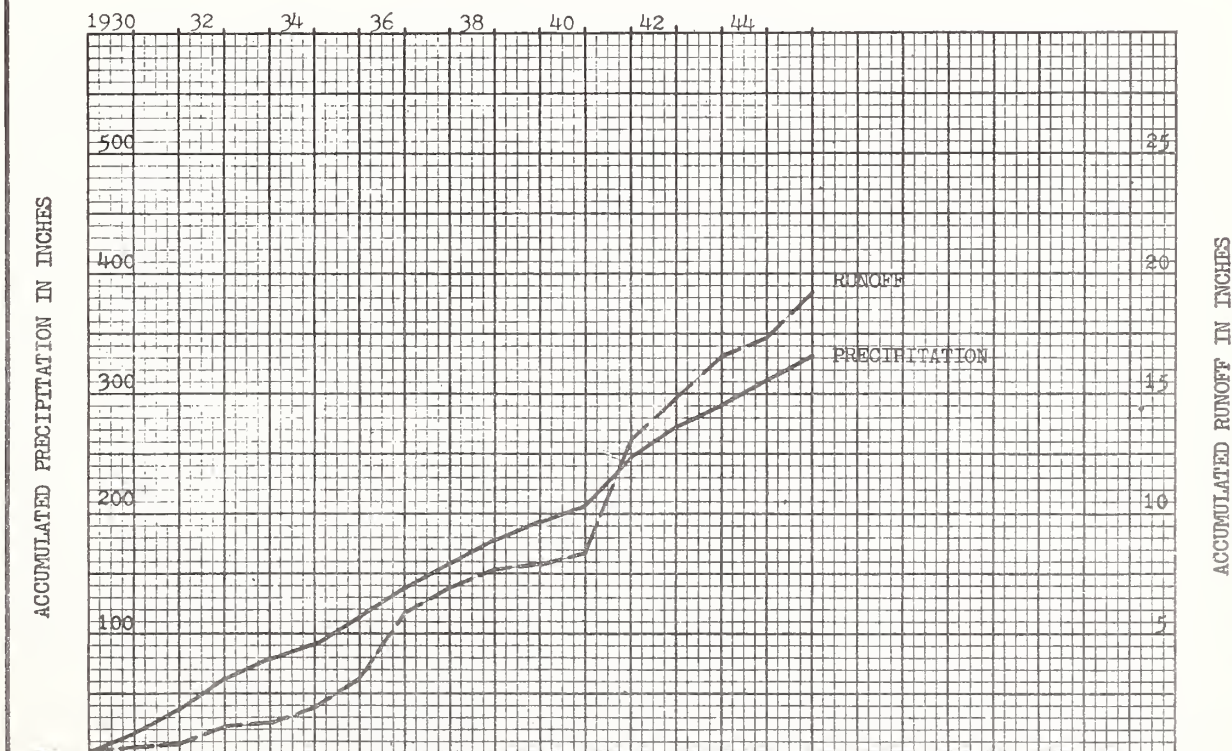
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete weir with two 90 degree notches with depth of 18 inches, equipped with automatic Au Fuzee waterstage recorder; precipitation - one recording raingage in vicinity of 12 small areas.

WATERSHED CONDITIONS: Continuous cotton rows with slope. Area put into cultivation in 1924.

GENERALLY REPRESENTS: Row-cropped areas with straight rows in the Red Plains of Kansas, Oklahoma, and Texas with rather large bodies of land that are nearly flat, undulating or gently sloping.

ACCUMULATED PRECIPITATION AND RUNOFF



MONTHLY PRECIPITATION AND RUNOFF (Inches) Spur, Texas, Watershed 11

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1930 P	0.86	0	0.43	1.66	1.54	1.28	0.05	2.05	0.89	6.53	0.75	2.56	18.60
Q	0	0	0	0	0	0	0	0	0	.10	0	.15	.25
1931 P	.79	1.62	.33	2.18	1.22	1.29	1.80	1.14	0	2.53	2.42	1.14	16.46
Q	0	0	0	0	.11	.03	0	0	0	0	0	0	.14
1932 P	1.71	2.39	0	1.91	1.43	3.38	2.67	5.55	4.24	.58	.09	3.75	27.70
Q	0	0	0	.03	0	.57	.10	.04	0	0	0	.03	.77
1933 P	.19	1.47	0	.15	2.86	0	2.51	3.32	3.17	.35	1.12	.45	15.59
Q	0	0	0	0	0	0	.06	0	0	0	0	0	.06
1934 P	.12	.21	2.20	1.16	2.50	.07	.11	1.18	2.52	.87	1.93	.01	12.88
Q	0	0	0	0	.08	0	0	0	.58	0	.03	0	.69
1935 P	.01	.61	.98	.71	4.54	6.93	.99	1.05	3.62	2.22	1.50	.62	23.78
Q	0	0	0	0	.95	.05	0	0	0	.03	0	0	1.13
1936 P	1.11	0	.22	2.49	2.79	1.43	2.85	.11	11.13	1.41	.48	.45	24.47
Q	0	0	0	.10	.04	0	.63	0	2.05	0	0	0	2.82
1937 P	.38	0	2.05	.86	2.92	1.31	.68	6.93	2.18	2.47	.09	.41	20.28
Q	0	0	0	0	.03	0	0	1.00	0	0	0	0	1.03
1938 P	1.14	3.31	.82	.89	2.89	5.16	3.30	.21	.09	1.33	.78	.04	19.96
Q	0	0	0	.03	0	.36	.33	0	0	0	0	0	.72
1939 P	1.98	.25	.52	.29	2.07	1.80	.44	1.85	0	2.62	.60	.64	13.06
Q	0	0	0	0	0	0	0	.06	0	.17	0	0	.23
1940 P	.16	1.14	0	1.79	1.17	1.06	.07	3.24	.41	1.34	3.16	.04	13.58
Q	0	0	0	0	0	0	0	.26	0	0	.22	0	.48
1941 P	.88	1.64	2.04	4.17	6.94	4.12	2.94	1.46	9.90	7.90	.21	.67	42.87
Q	0	0	0	.71	1.45	.57	.15	0	1.52	.43	0	0	4.83
1942 P	.06	.33	.31	3.67	1.63	3.44	1.60	3.40	3.88	2.82	.17	1.79	23.10
Q	0	0	0	0	0	.49	0	0	.36	.83	0	0	1.68
1943 P	.10	0	.32	1.14	2.81	2.95	5.36	0	2.37	.31	.80	1.64	17.80
Q	0	0	0	0	0	.29	1.55	0	0	0	0	0	1.84
1944 P	1.77	1.78	.12	.89	2.49	2.50	2.51	2.34	1.18	1.07	1.95	2.72	21.32
Q	0	0	0	0	.02	.64	.05	0	0	0	0	0	.71
1945 P	.89	1.04	.34	.58	.08	3.30	4.29	1.78	4.27	2.12	.69	.21#	19.59
Q	0	0	0	0	0	.52	.29	0	1.07	0	0	0 #	1.88
P													
Q													
P													
Q													
P													
Q													
Av. P	.76	.99	.67	1.53	2.49	2.50	2.01	2.23	3.12	2.28	1.05	1.07	20.70
Av. Q	0	0	0	.05	.17	.22	.20	.09	.35	.10	.02	.01	1.21
Normal P	.55	.76	.85	1.81	2.97	2.53	2.00	2.45	2.72	2.41	.82	.86	20.73

**Notes:** # Station discontinued December 31, 1945. Normal P is 45 year mean (1911-1955) at Texas Substation, #7, Spur, Texas. Quality of records: P - fair; Q - fair.

LOCATION: Dickens Co., Texas; 1 mi. west of Spur; drainage into small lake with no outlet, but within general area of Brazos River Basin.

AREA: 8.41 ac.

SHAPE: Rectangle, approximately 1340 ft. long by 270 ft. wide.

SLOPES: 0.8%, almost uniform. Aspect S.

SOILS: Miles-Abilene clay loam. Miles clay loam profile; 0-8", dark brown clay loam; 8-18", reddish brown heavy clay loam moderately permeable; 18-32", dark reddish brown light clay, slowly permeable; 32-45", red sandy clay, slightly calcareous; 45-62", yellowish red highly calcareous earth. Abilene clay is similar, except dark throughout, less sandy and somewhat heavier, and slightly less permeable in the third horizon.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good

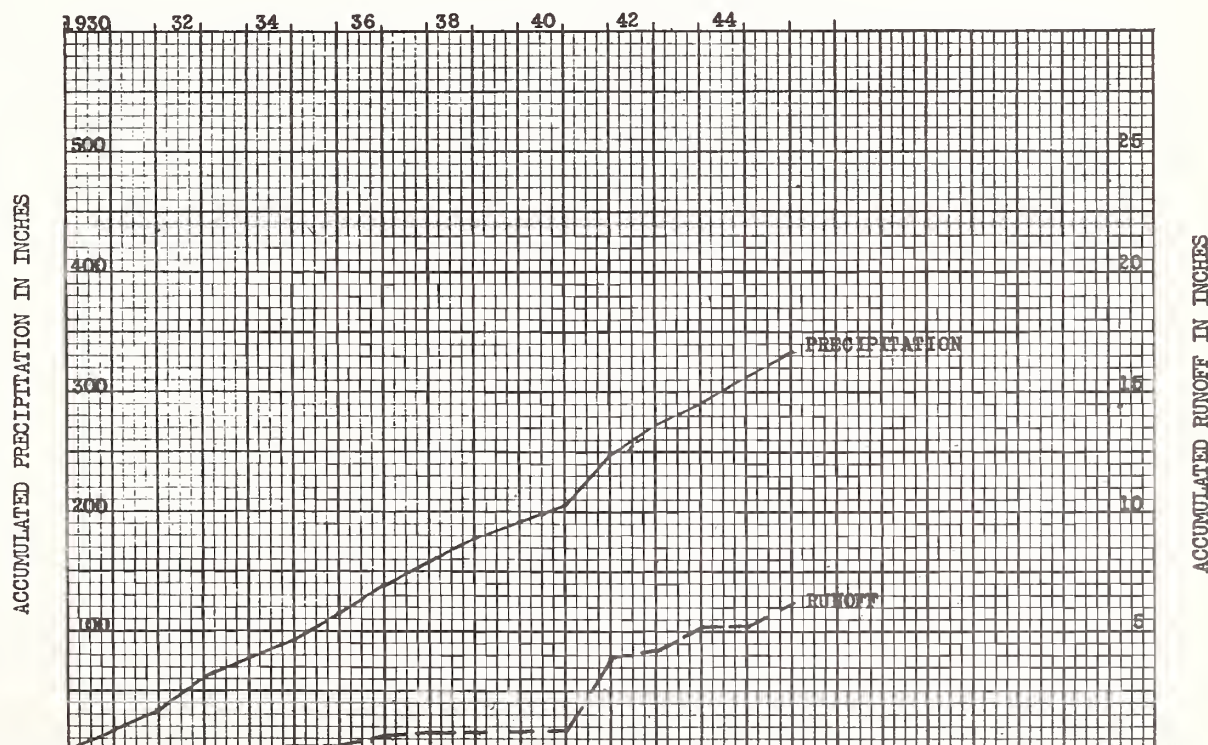
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete weir with two 90 degree notches with depth of 18 inches, equipped with automatic Au Fuzee waterstage recorder; precipitation - one recording raingage in vicinity of 12 small areas

WATERSHED CONDITIONS: Continuous cotton with contour rows. Area put into cultivation in 1924.

GENERALLY REPRESENTS: Contour rowcropped areas in the Red Plains of Kansas, Oklahoma, and Texas with rather large bodies of land that are nearly flat, undulating or gently sloping.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Spur, Texas Watershed 12

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1930 P Q	0.86 0	0 0	0.43 0	1.66 0	1.54 0	1.28 0	0.05 0	2.05 0	0.89 0	6.53 0	0.75 0	2.56 0	18.60 0
1931 P Q	.79 0	1.62 0	.33 0	2.18 0	1.22 0	1.29 0	1.80 0	1.14 0	0 0	2.53 0	2.42 0	1.14 0	16.46 0
1932 P Q	1.71 0	2.39 0	0 0	1.91 0	1.43 0	3.38 0	2.67 0	5.55 0	4.24 0	.58 0	.09 0	3.75 0	27.70 0
1933 P Q	.19 0	1.47 0	0 0	.15 0	2.86 0	0 0	2.51 0	3.32 0	3.17 0	.35 0	1.12 0	.45 0	15.59 0
1934 P Q	.12 0	.21 0	2.20 0	1.16 0	2.50 0	.07 0	.11 0	1.18 0	2.52 .08	.87 0	1.93 0	.01 0	12.88 .08
1935 P Q	.01 0	.61 0	.98 0	.71 0	4.54 0	6.93 .04	.99 0	1.05 0	3.62 0	2.22 0	1.50 0	.62 0	23.78 .04
1936 P Q	1.11 0	0 0	.22 0	2.49 0	2.79 0	1.43 0	2.85 .04	.11 0	11.13 .51	1.41 0	.48 0	.45 0	24.47 .55
1937 P Q	.38 0	0 0	2.05 0	.86 0	2.92 0	1.31 0	.68 0	6.93 .18	2.18 0	2.47 0	.09 0	.41 0	20.28 .18
1938 P Q	1.14 0	3.31 0	.82 0	.89 0	2.89 0	5.16 0	3.30 0	.21 0	.09 0	1.33 0	.78 0	.04 0	19.96 0
1939 P Q	1.98 0	.25 0	.52 0	.29 0	2.07 0	1.80 0	.44 0	1.85 0	0 0	2.62 .01	.60 0	.64 0	13.06 .01
1940 P Q	.16 0	1.14 0	0 0	1.79 0	1.17 0	1.06 0	.07 0	3.24 0	.41 0	1.34 0	3.16 .05	.04 0	13.58 .05
1941 P Q	.88 0	1.64 0	2.04 0	4.17 .15	6.94 .77	4.12 .45	2.94 .04	1.46 0	9.90 1.26	7.90 .43	.21 0	.67 0	42.87 3.10
1942 P Q	.06 0	.33 0	.31 0	3.67 0	1.63 0	3.44 .14	1.60 0	3.40 0	3.88 .02	2.82 .08	.17 0	1.79 0	23.10 .24
1943 P Q	.10 0	T 0	.32 0	1.14 0	2.81 0	2.95 .09	5.36 .93	0 0	2.37 0	.31 0	.80 0	1.64 0	17.80 1.02
1944 P Q	1.77 0	1.78 0	.12 0	.89 0	2.49 0	2.50 T	2.51 0	2.34 0	1.18 0	1.07 0	1.95 0	2.72 0	21.32 T
1945 P Q	.89 0	1.04 0	.34 0	.58 0	.08 0	3.30 .17	4.29 .10	1.78 0	4.27 .73	2.12 0	.69 0	.21# 0 #	19.59 1.00
P Q													
P Q													
P Q													
P Q													
P Q													
Av. P Av. Q	.76 0	.99 0	.67 0	1.53 .01	2.49 .05	2.50 .06	2.01 .07	2.23 .01	3.12 .16	2.28 .03	1.05 T	1.07 0	20.70 .39
Normal P	.55	.76	.85	1.81	2.97	2.53	2.00	2.45	2.72	2.41	.82	.86	20.73

**Notes:** # Station discontinued December 31, 1945. Normal P is 45-year mean (1911-1955) at Texas Substation, #7, Spur, Texas. Quality of records: P - fair; Q - fair.

8-56, revised 2-59

SPUR, TEXAS

Watershed 14

LOCATION: Dickens Co., Texas; 1 mi. west of Spur; drainage into small lake with no outlet, but within general area of Brazos River Basin.

AREA: 8.53 ac.

SHAPE: Rectangle, approximately 1340 ft. long by 275 ft. wide.

SLOPES: 0.8%, almost uniform.

Aspect S.

SOILS: Miles-Abilene clay loam. Miles clay loam profile: 0-8", dark brown clay loam; 8-18", reddish brown heavy clay loam moderately permeable; 18-32", dark reddish brown light clay, slowly permeable; 32-45", red sandy clay, slightly calcareous; 45-62", yellowish red highly calcareous earth. Abilene clay is similar, except dark throughout, less sandy and somewhat heavier, and slightly less permeable.

EROSION: 2 - 100%.

in the third horizon.

LAND CAPABILITY: II - 100%.

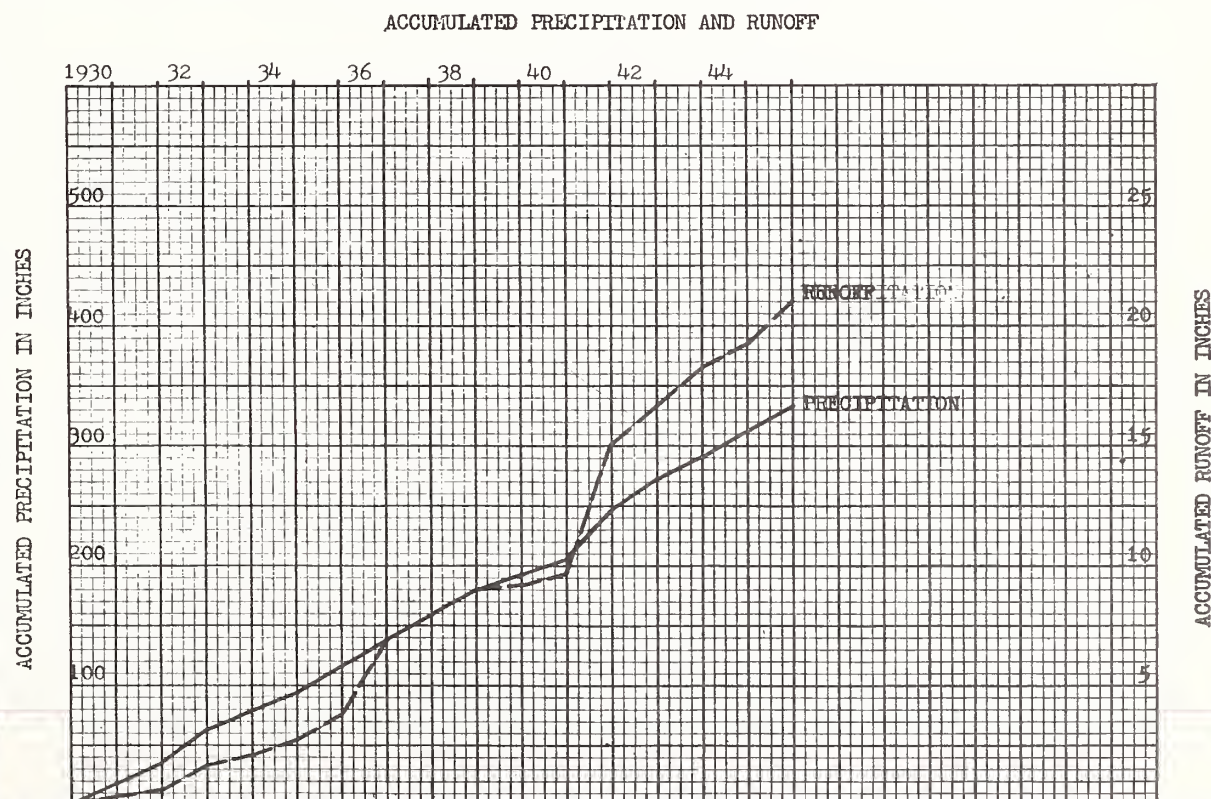
SURFACE DRAINAGE: Good.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete weir with two 90 degree notches with depth of 18 inches, equipped with automatic Au Fuzee waterstage recorder; precipitation - one recording raingage in vicinity of 12 small areas.

WATERSHED CONDITIONS: Continuous cotton rows with slope. Area put into cultivation in 1924.

GENERALLY REPRESENTS: Rowcropped areas with straight rows in the Red Plains of Kansas, Oklahoma, and Texas with rather large bodies of land that are nearly flat, undulating or gently sloping.



Cooperative research project of USDA and Texas Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Spur, Texas Watershed 14

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1930 P	0.86	0	0.43	1.66	1.54	1.28	0.05	2.05	0.89	6.53	0.75	2.56	18.60
Q	0	0	0	0	0	0	0	0	0	.12	0	.24	.36
1931 P	.79	1.62	.33	2.18	1.22	1.29	1.80	1.14	0	2.53	2.42	1.14	16.46
Q	0	0	0	0	.20	.10	0	0	0	0	0	0	.30
1932 P	1.71	2.39	0	1.91	1.43	3.38	2.67	5.55	4.24	.58	.09	3.75	27.70
Q	0	0	0	.07	.05	.76	.08	.03	0	0	0	.04	1.03
1933 P	.19	1.47	0	.15	2.86	0	2.51	3.32	3.17	.35	1.12	.45	15.59
Q	0	0	0	0	.03	0	.35	0	0	0	0	0	.38
1934 P	.12	.21	2.20	1.16	2.50	.07	.11	1.18	2.52	.87	1.93	.01	12.88
Q	0	0	0	0	.13	0	0	0	.41	0	.05	0	.59
1935 P	.01	.61	.98	.71	4.54	6.93	.99	1.05	3.62	2.22	1.50	.62	23.78
Q	0	0	0	0	.97	.06	0	0	.05	.05	0	0	1.13
1936 P	1.11	0	.22	2.49	2.79	1.43	2.85	.11	11.13	1.41	.48	.45	24.47
Q	0	0	0	.26	.11	0	.69	0	2.09	0	0	0	3.15
1937 P	.38	0	2.05	.86	2.92	1.31	.68	6.93	2.18	2.47	.09	.41	20.28
Q	0	0	0	0	.05	.06	0	.90	.03	0	0	0	1.04
1938 P	1.14	3.31	.82	.89	2.89	5.16	3.30	.21	.09	1.33	.78	.04	19.96
Q	0	0	0	0	0	.73	.28	0	0	0	0	0	1.01
1939 P	1.98	.25	.52	.29	2.07	1.80	.44	1.85	0	2.62	.60	.64	13.06
Q	0	0	0	0	0	0	0	.06	0	.15	0	0	.21
1940 P	.16	1.14	0	1.79	1.17	1.06	.07	3.24	.41	1.34	3.16	.04	13.58
Q	0	0	0	0	0	0	0	.19	0	0	.30	0	.49
1941 P	.88	1.64	2.04	4.17	6.94	4.12	2.94	1.46	9.90	7.90	.21	.67	42.87
Q	0	0	0	1.24	1.46	.67	.18	0	1.80	.50	0	0	5.85
1942 P	.06	.33	.31	3.67	1.63	3.44	1.60	3.40	3.88	2.82	.17	1.79	23.10
Q	0	0	0	0	0	.76	0	0	.46	.47	0	0	1.69
1943 P	.10	T	.32	1.14	2.81	2.95	5.36	0	2.37	.31	.80	1.64	17.80
Q	0	0	0	0	0	.23	1.42	0	0	0	0	0	1.65
1944 P	1.77	1.78	.12	.89	2.49	2.50	2.51	2.34	1.18	1.07	1.95	2.72	21.32
Q	0	0	0	0	.03	.81	.07	0	0	0	0	0	.91
1945 P	.89	1.04	.34	.58	.06	3.30	4.29	1.78	4.27	2.12	.69	.21#	19.59
Q	0	0	0	0	0	.51	.29	0	1.03	0	0	0 #	1.83
P													
Q													
P													
Q													
P													
Q													
Av. P	.76	.99	.67	1.53	2.49	2.50	2.01	2.23	3.12	2.28	1.05	1.07	20.70
Av. Q	0	0	0	.10	.19	.29	.21	.07	.37	.08	.02	.02	1.35
Normal P	.55	.76	.85	1.81	2.97	2.53	2.00	2.45	2.72	2.41	.82	.86	20.73

Notes:

# Station discontinued December 31, 1945. Normal P is 45 year mean (1911-1955) at Texas Substation, #7, Spur, Texas. Quality of records: P - fair; Q - fair.



LOCATION: Dickens Co., Texas; 1 mi. west of Spur; drainage into small lake with no outlet, but within general area of Brazos River Basin.

AREA: 8.50 ac.

SHAPE: Rectangle, approximately 1340 ft. long by 270 ft. wide.

SLOPES: 0.8%, almost uniform. Aspect S.

SOILS: Miles-Abilene clay loam. Miles clay loam profile: 0-8", dark brown clay loam; 8-18", reddish brown heavy clay loam moderately permeable; 18-32", dark reddish brown light clay, slowly permeable; 32-45", red sandy clay, slightly calcareous; 45-62", yellowish red highly calcareous earth. Abilene clay is similar, except dark throughout, less sandy and somewhat heavier, and slightly less permeable in the third horizon.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good

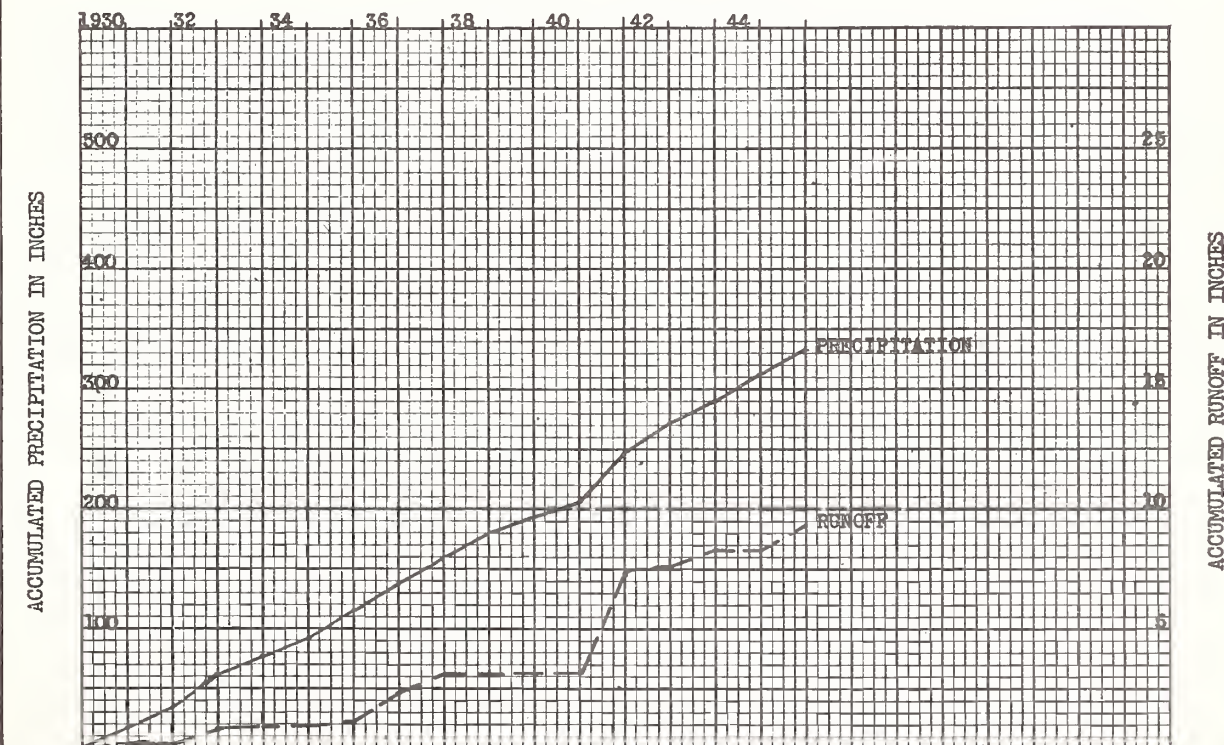
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete weir with two 90 degree notches with depth of 18 inches; equipped with automatic Au Fuzee waterstage recorder; precipitation - one recording raingage in vicinity of 12 small areas.

WATERSHED CONDITIONS: Continuous cotton with contour rows. Area put into cultivation in 1924.

GENERALLY REPRESENTS: Contour rowcropped areas in the Red Plains of Kansas, Oklahoma, and Texas with rather large bodies of land that are nearly flat, undulating or gently sloping.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Spur, Texas, Watershed #15

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1930 P Q	0.86 0	0 0	0.43 0	1.66 0	1.54 0	1.28 0	0.05 0	2.05 0	0.89 0	6.53 .04	0.75 0	2.56 0	18.60 .04
1931 P Q	.79 0	1.62 0	.33 0	2.18 0	1.22 0	1.29 0	1.80 0	1.14 0	0 0	2.53 0	2.42 0	1.14 0	16.46 0
1932 P Q	1.71 0	2.39 0	0 0	1.91 0	1.43 0	3.38 .76	2.67 .05	5.55 0	4.24 0	.58 0	.09 0	3.75 .05	27.70 .86
1933 P Q	.19 0	1.47 0	0 0	.15 0	2.86 0	0 0	2.51 0	3.32 0	3.17 0	.35 0	1.12 0	.45 0	15.59 0
1934 P Q	.12 0	.21 0	2.20 0	1.16 0	2.50 0	.07 0	.11 0	1.18 0	2.52 .05	.87 0	1.93 0	.01 0	12.88 .05
1935 P Q	.01 0	.61 0	.98 0	.71 0	4.54 .04	6.93 .05	.99 0	1.05 0	3.62 0	2.22 0	1.50 0	.62 0	23.78 .09
1936 P Q	1.11 0	0 0	.22 0	2.49 0	2.79 0	1.43 0	2.85 .08	.11 0	11.13 1.22	1.41 0	.48 0	.45 0	24.47 1.30
1937 P Q	.38 0	0 0	2.05 0	.86 0	2.92 0	1.31 0	.68 0	6.93 .91	2.18 0	2.47 0	.09 0	.41 0	20.28 .91
1938 P Q	1.14 0	3.31 0	.82 0	.89 0	2.89 0	5.16 0	3.30 0	.21 0	.09 0	1.33 0	.78 0	.04 0	19.96 0
1939 P Q	1.98 0	.25 0	.52 0	.29 0	2.07 0	1.80 0	.44 0	1.85 0	0 0	2.62 .05	.60 0	.64 0	13.06 .05
1940 P Q	.16 0	1.14 0	0 0	1.79 0	1.17 0	1.06 0	.07 0	3.24 0	.41 0	1.34 0	3.16 .07	.04 0	13.58 .07
1941 P Q	.88 0	1.64 0	2.04 0	4.17 .27	6.94 1.15	4.12 .42	2.94 .06	1.46 0	9.90 1.83	7.90 .50	.21 0	.67 0	42.87 4.23
1942 P Q	.06 0	.33 0	.31 0	3.67 0	1.63 0	3.44 .16	1.60 0	3.40 0	3.88 0	2.82 0	.17 0	1.79 0	23.10 .16
1943 P Q	.10 0	T 0	.32 0	1.14 0	2.81 0	2.95 .05	5.36 .65	0 0	2.37 0	.31 0	.80 0	1.64 0	17.80 .70
1944 P Q	1.77 0	1.78 0	.12 0	.89 0	2.49 0	2.50 T	2.51 0	2.34 0	1.18 0	1.07 0	1.95 0	2.72 0	21.32 T
1945 P Q	.89 0	1.04 0	.34 0	.58 0	.08 0	3.30 .24	4.29 .13	1.78 0	4.27 .72	2.12 0	.69 0	.21# 0	19.59 1.09
P Q													
P Q													
P Q													
P Q													
P Q													
* Av. P ** Av. Q	.76 0	.99 0	.67 0	1.53 .02	2.49 .07	2.50 .10	2.01 .06	2.23 .06	3.12 .24	2.28 .04	1.05 T	1.07 T	20.70 .59
Normal P	.55	.76	.85	1.81	2.97	2.53	2.00	2.45	2.72	2.41	.82	.86	20.73

**Notes:** # Station discontinued December 31, 1945. Normal P is 45 year mean (1911-1955) at Texas Substation, #7, Spur, Texas. Quality of records: P - fair; Q - fair.

LOCATION: Smith Co., Texas; 10 mi. N. W. of Tyler; Interior West Gulf Coastal Plain.

AREA: 9.15 ao.

SHAPE: Fan-shaped.

SLOPES: 5% is in 3% or less slope class; 50% in 3-5%; 30% in 5-8%; 15% in 8% or greater slope; average 7.50%, maximum slope length 738 ft. Aspect S.

SOILS: Boswell fine sandy loam. Formerly classified as Nacogdoches, 40%; Kirwin, 40%; and Bowie, 20%. Much of the fine sand loam topsoil of this area has been lost by erosion. The subsoil of the Kirwin and Nacogdoches is slowly permeable. The clay or sand clay subsoil of the Bowie is permeable.

EROSION: 2 - 80%; 3 - 20%.

LAND CAPABILITY: II - 20%; III - 80%.

SURFACE DRAINAGE: Good

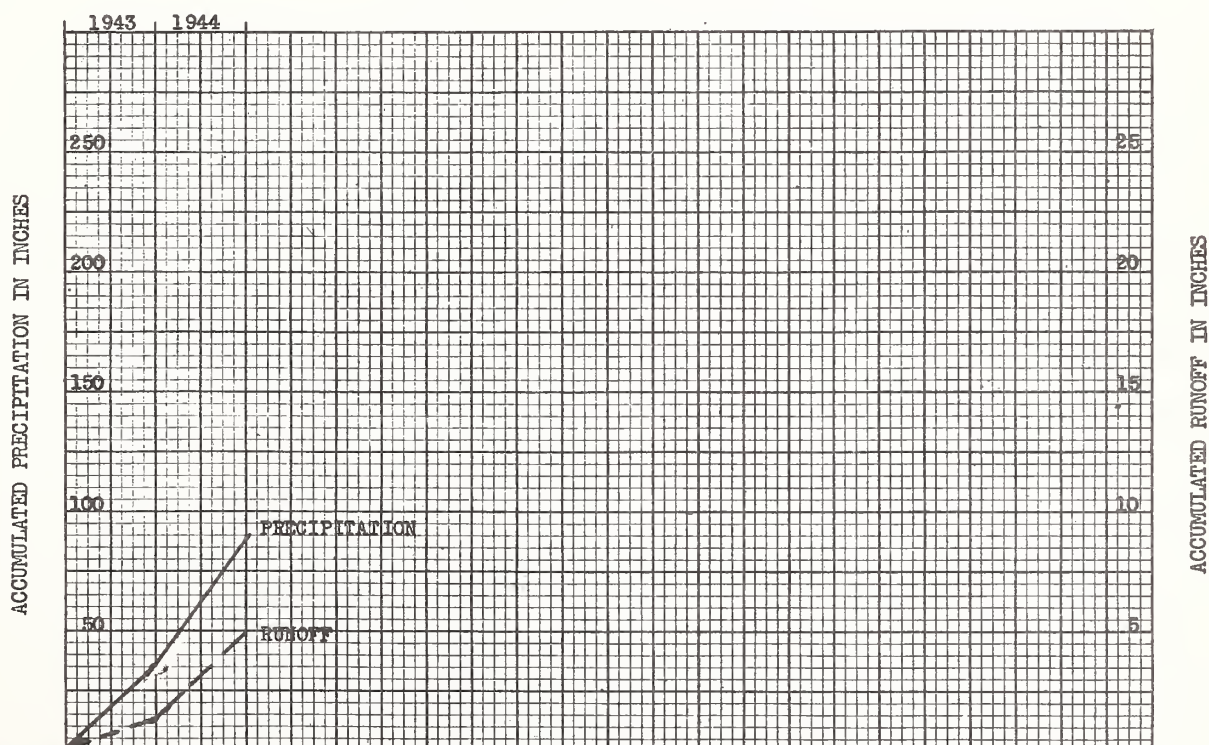
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume, flat floor, 12 hr. chart; precipitation - weighing recording raingage, 12 hr. chart.

WATERSHED CONDITIONS: In 1934 the area was removed from cultivation, sodded with Bermuda grass and top seeded with a clover mixture. In 1939 old terraces were obliterated, and areas sodded and seeded to Bermuda grass and clover. Watershed boundaries were established. The area had a good cover of grass and clover before measurements were started in 1942. Good grazing control was practiced on the area.

GENERALLY REPRESENTS: Old cultivated fields that have been changed to permanent grassland, in the Middle and Upper Coastal Plain in eastern Texas, Arkansas, and Louisiana. The plant cover during the period of record was considered to be representative of well managed upland pasture areas of the eastern Texas sandy land area.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Tyler, Texas, Watershed #2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1943 P	1.68	0.07	2.62	4.44	8.70	2.34	1.91	0.65	3.03	5.22	1.35	4.22	36.23
Q	0	0	0	.25	.32	.13	0	0	0	.73	0	.05	1.48
1944 P	5.43	8.42	3.63	9.78	4.34	1.02	.85	3.54	1.46	.01	6.92	8.13#	53.53
Q	.10	1.26	.11	.80	.88	0	0	0	0	0	.07	.23#	3.45
P													
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Av. P	3.56	4.24	3.12	7.11	6.52	1.68	1.38	2.10	2.24	2.62	4.14	6.18	44.89
Av. Q	.05	.63	.05	.52	.60	.06	0	0	0	.36	.04	.14	2.46
Normal P	3.56	3.41	4.07	4.78	5.23	3.05	3.27	2.49	2.45	3.21	4.13	4.64	44.29

Notes: # Station discontinued December 31, 1944. Normal P based on period 1905-54 inclusive, Texas Substation #2, Tyler, Texas. Quality of records: P - good; Q - good.

LOCATION: Smith Co., Texas; 10 mi. N. W. of Tyler; Interior Gulf Coastal Plain.

AREA: 7.94 ac.

SHAPE: Fan-shaped.

SLOPES: 20% is in 0-3% slope class; 62% in 3-5%; 8% in 5-8%; 10% in 8% slope or more; average slope 7.50%. Aspect S.

SOILS: Boswell fine sandy loam. Formerly classified as Kirwin. Good internal drainage. The soil has a brown or reddish brown topsoil grading into slowly permeable clay subsoil with mottled red and gray clay at depths of 2 to 4 feet.

EROSION: 1 - 90%; 2 - 10%.

LAND CAPABILITY: V - 100%.

SURFACE DRAINAGE: Good

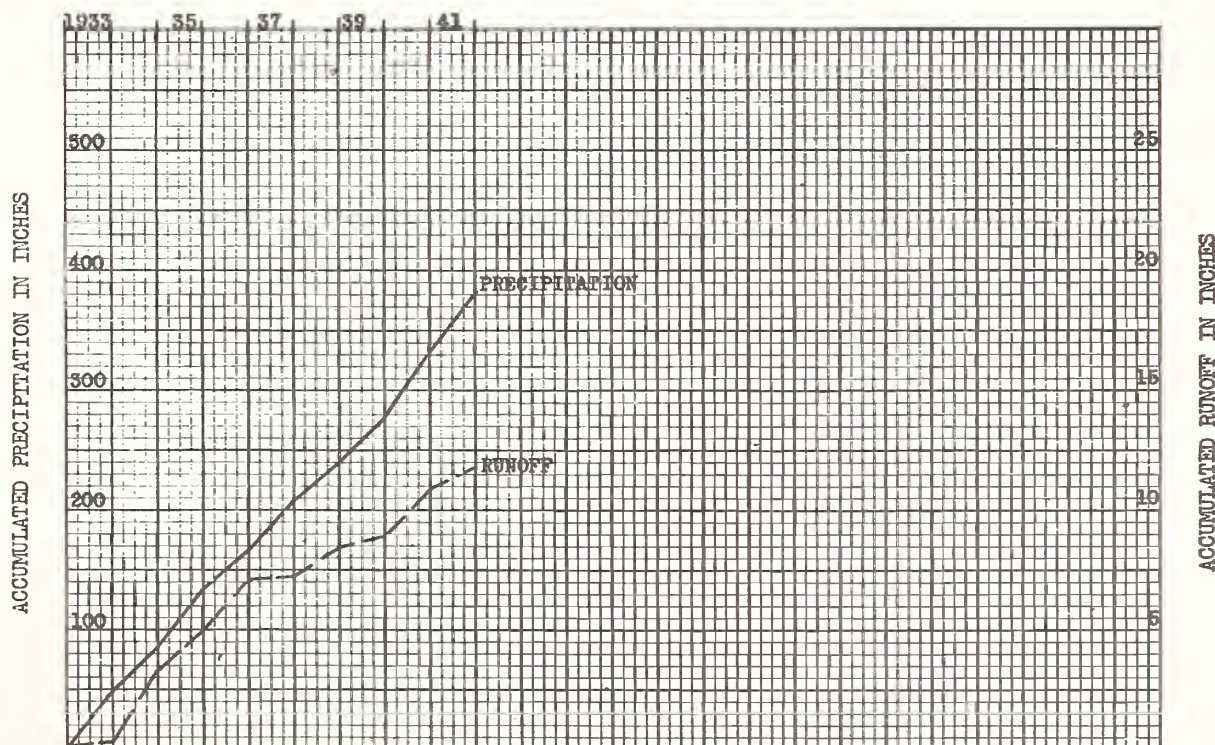
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 1 ft. metal Parshall flume, 12 hr. chart; precipitation - weighing recording raingage, 12 hr. chart.

WATERSHED CONDITIONS: The size and shape was not altered during the period of operation. The only change being natural increase in size of trees and density of the understory. Light grazing was permitted prior to 1932. In 1938 approximately one-fourth of the area burned over. The area includes about 1 acre of grassland with good cover, 1/4 acre of abandoned roadway, and the remainder had a fair to good cover of native trees, shrubs, and grasses.

GENERALLY REPRESENTS: Wooded areas with fair to good cover in the Middle and Upper Coastal Plain in eastern Texas, Arkansas, and Louisiana.

ACCUMULATED PRECIPITATION AND RUNOFF



Tyler, Texas, Watershed #2

Notes: # Station discontinued June 30, 1942. \*\* Does not include part year amounts for 1932 and 1942. Normal P based on period 1905-54 inclusive, Texas Substation #2, Tyler, Texas. Quality of records: P - good; Q - good.



8-56, revised 2-59

TYLER, TEXAS Watershed #4

LOCATION: Smith Co., Texas; 10 mi. N. W. of Tyler; Interior West Gulf Coastal Plain.

6.38 ac. 1931-32

AREA: 5.75 ac. 1933-Mar. 39.

SHAPE: Fan-shaped.

6.06 ac. Mar. 39 - 42

SLOPES: 5% is in 3-5% slope class; 80% in 5-8%; 15% in 8% or more slope; average slope 7.50%.

Aspect N.

SOILS: Boswell fine sandy loam. Formerly classified as Kirwin, 30%; Nacogdoches, 50%; and Bowie, 20%. Much of the fine sandy loam topsoil of this area has been lost by erosion. The subsoil of the Kirwin and Nacogdoches is slowly permeable. The clay or sandy clay subsoil of the Bowie is permeable.

EROSION: 3 - 90%; 2 - 10%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Good

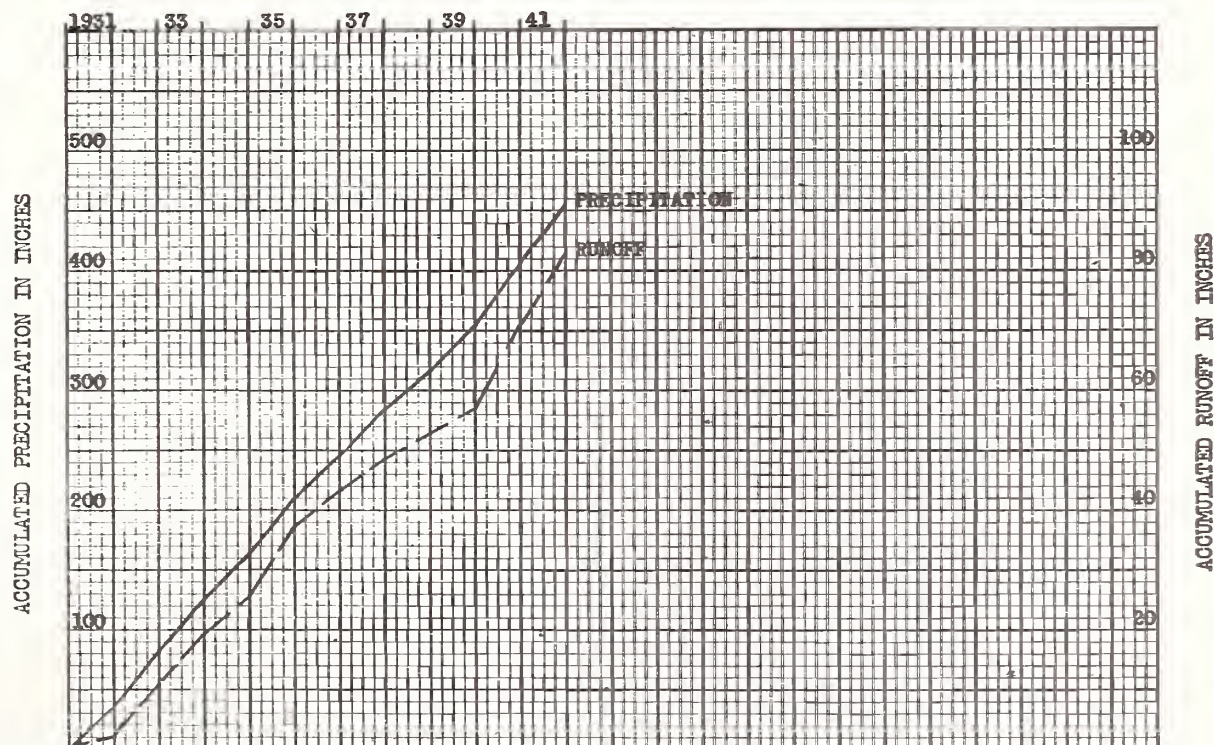
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. metal Parshall flume, 12 hr. chart; precipitation - one weighing recording raingauge, 12 hr. chart.

WATERSHED CONDITIONS: Row-cropped and contour cultivated in 3-year cropping system of corn, cotton, and oats with winter cover crop of vetch following corn. The area was badly gullied at beginning of measurements and from year-to-year gullies and depressions deepened and became more difficult to cross with tillage implements.

WATERSHED CONDITIONS: Eroded cultivated areas in the Middle and Upper Coastal Plain in eastern Texas, Arkansas, and Louisiana. In 1932, similar areas were being row-cropped until gullies became too deep to cross with machinery. Since 1940, most of these areas have been either removed from row-crop farming or terraced.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Tyler, Texas, Watershed #4

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1931 P	1.67	3.36	3.50	2.90	1.60	3.69	2.67	3.38	0.14	2.20	3.50	6.60	35.21
Q	0	0	.03	.03	.03	1.18	0	.06	0	.01	.01	.71	2.06
1932 P	9.95	6.24	3.51	3.47	1.73	1.66	2.91	1.37	2.86	2.12	.90	9.37	46.09
Q	2.69	.49	.34	.11	0	0	.33	.04	.04	0	0	4.41	8.45
1933 P	5.16	1.74	4.88	3.91	4.71	0	5.31	5.25	4.22	1.61	.88	7.99	45.66
Q	1.31	.18	1.88	.98	.86	0	.42	.69	.87	0	0	1.10	8.29
1934 P	2.91	6.22	4.48	6.33	1.01	1.46	.45	.71	2.30	.37	5.98	2.64	34.86
Q	.19	1.10	1.45	3.39	.02	0	0	.03	0	0	.40	.55	7.13
1935 P	3.78	3.58	2.35	4.79	8.16	3.01	3.56	1.31	3.53	6.14	4.12	4.36	48.69
Q	1.14	.97	.37	.24	3.57	.18	.93	.18	.01	1.19	.91	1.74	11.43
1936 P	.91	1.02	1.40	3.43	7.16	0	4.73	.39	2.68	4.81	1.87	5.35	33.75
Q	0	0	.01*	.34*	3.58*	0	.48	0	.03	.40	.02	1.17	6.03*
1937 P	7.38	1.65	4.10	2.73	.82	3.41	2.47	3.02	1.20	2.06	5.12	6.24	40.20
Q	1.34	.01	.25	.25	0	.34	0	.30	.23	0	1.24	.95	4.91
1938 P	4.66	1.69	4.39	4.32	1.81	3.46	.70	2.66	.71	.47	4.09	2.11	31.07
Q	1.66	0	.68	.28	0	.03	0	.72	0	0	.68	.34	4.39
1939 P	4.82	6.81	1.30	2.74	2.96	2.93	3.46	1.39	.07	2.05	4.60	2.55	35.68
Q	.67	1.63	.01	.36	.30	.15	1.15	.10	0	0	0	.01	4.38
1940 P	1.00	3.36	2.17	3.95	4.32	6.69	3.28	5.37	2.92	5.29	8.94	5.20	52.49
Q	0	.19	.26	.26	.90	3.16	.14	1.96	.64	1.60	3.18	2.03	14.32
1941 P	1.66	3.39	3.93	3.98	1.70	12.00	4.82	3.02	4.14	2.09	3.77	4.86	49.66
Q	.50	.47	1.03	1.08	.06	4.87	1.25	.45	1.26	.07	.65	.86	12.55
1942 P	1.54	1.37	2.10	9.55	3.59	4.36	#						22.51
Q	.09	.03	.04	4.65	.08	.58	#						5.47
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**Av. P	3.99	3.55	3.27	3.87	3.27	3.48	3.12	2.53	2.28	2.66	3.98	5.21	41.21
**Av. Q	.86	.46	.57	.67	.85	.90	.43	.41	.28	.30	.64	1.26	7.63
Normal P	3.56	3.41	4.07	4.78	5.23	3.05	3.27	2.49	2.45	3.21	4.13	4.64	44.29

**Notes:** # Station discontinued June 30, 1942. \* Partially estimated. \*\* Does not include part year amount for 1942. Normal P based on 1905-1954 inclusive, Texas Substation, #2, Tyler, Texas. Quality of records: P - good; Q - good.



LOCATION: Smith Co., Texas; 10 mi. N. W. of Tyler; Interior West Gulf Coastal Plain.

AREA: 1.73 ac. 1931-36  
1.57 ac. 1937-42

SHAPE: Fan-shaped.

SLOPES: 85% is in 3-5% slope class; 15% in 5-8%; average slope 5.50%. Aspect W.

SOILS: Boswell fine sandy loam. Formerly classified as Bowie. Topsoil is gray or brownish gray grading into permeable friable sandy clay subsoils. At a depth of 2 to 3 feet the soil becomes mottled with gray, yellow, and red.

EROSION: 2 - 80%; 3 - 20%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Good

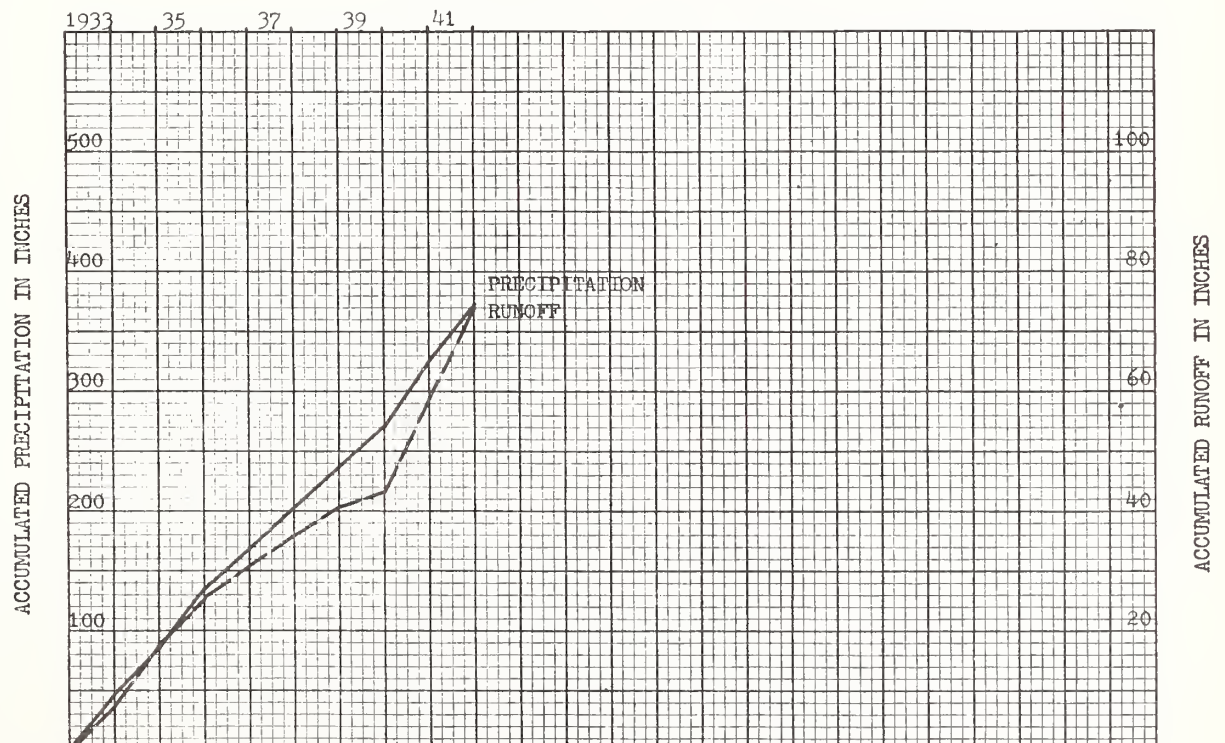
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 1 ft. metal Parshall flume, 12 hr. chart; precipitation - one weighing recording raingage, 12 hr. chart.

WATERSHED CONDITIONS: Strip-cropped most of the time, with 50% of the cultivated area in broadcast control strips of oats, and 50% of the area in row-crops of corn and cotton with winter cover crop of vetch following corn and preceding cotton. The broadcast strips and row-cropped areas were rotated annually.

GENERALLY REPRESENTS: Cultivated areas, that have good surface drainage and are suitable for intensive cultivation, in the Middle and Upper Coastal Plain of eastern Texas, Arkansas, and Louisiana.

ACCUMULATED PRECIPITATION AND RUNOFF





Tyler, Texas, Watershed #5

Month		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932	P Q				3.37 .12	1.73 .02	1.67 .02	3.05 .20	1.39 .02	2.84 0	1.70 0	2.79 0	9.12 4.63	27.66 5.01
1933	P Q	4.96 2.69	1.88 .27	4.97 .99	4.13 .61	4.90 .80	0 0	5.53 .72	5.42 .34	4.26 .22	1.63 0	.87 0	7.56 .68	46.11 7.32
1934	P Q	2.94 .29	6.25 2.67	<u>7.72</u> <u>3.80</u>	6.74 3.11	1.15 0	1.41 0	.44 0	.77 0	2.26 0	.39 0	6.13 .14	2.77 .45	<u>38.97</u> <u>10.46</u>
1935	P Q	3.98 .36	3.71 .71	2.30 0	4.76 .06	8.32 3.79	3.05 .04	3.79 .59	1.24 0	3.69 0	6.15 .94	4.01 .52	4.08 .66	49.08 7.67
1936	P Q	.95 0	1.15 0	1.39 .01	3.64 .15	7.09 3.50	0 0	5.26 .46	.38 0	2.71 .01	4.60 .19	2.02 .02	4.63 1.17	33.82 5.51
1937	P Q	5.93 1.00	1.62 .01	4.17 .33	2.68 .58	.80 0	3.41 .15	1.52 0	2.12 0	.33 0	2.03 0	4.37 .40	6.13 2.30	35.11 4.77
1938	P Q	4.59 3.01	1.67 .02	4.29 .63	3.89 .77	1.81 0	3.56 .17	.67 0	2.48 .16	.68 0	.47 0	4.40 .05	3.12 .02	31.63 4.83
1939	P Q	4.76 .08	7.65 1.94	1.18 0	2.96 .05	2.78 .27	2.46 0	3.48 .18	1.57 0	.11 0	1.88 0	4.46 .02	2.45 .01	35.74 2.55
1940	P Q	1.19 0	3.61 .02	2.32 .12	4.22 .19	4.48 .60	7.35 1.50	2.40 .13	5.59 .29	2.97 .18	5.30 .63	8.59 6.67	5.39 5.52	53.41 15.85
1941	P Q	1.69 1.48	3.24 1.96	4.01 2.16	3.95 1.28	1.72 0	12.35 5.52	4.93 .58	3.08 .03	4.64 .94	2.34 0	3.79 .18	4.54 .94	50.28 15.07
1942	P Q	1.60 .41	1.28 .08	2.00 .01	9.46 2.75	3.64 .40	4.55 .52	# #						22.53 4.17
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** Av. P ** Av. Q		3.44 .99	3.42 .84	<u>3.59</u> <u>.89</u>	4.11 .76	3.67 1.00	3.73 .82	3.11 .30	2.52 .09	2.41 .15	2.75 .20	4.29 .89	4.52 1.31	<u>41.56</u> <u>8.24</u>
Normal P		3.56	3.41	4.07	4.78	5.23	3.05	3.27	2.49	2.45	3.21	4.13	4.64	44.29

Notes: # Station discontinued June 30, 1942. \*\* Does not include the part year amounts for 1932 and 1942. Normal P based on period 1905-1954 inclusive, Texas Substation, #2, Tyler, Texas.  
Quality of records: P - good; Q - good.

2-56

VEGA, TEXAS

Watershed W-1

LOCATION: Oldham Co., Tex; 5 mi. N. of Vega; unnamed branch of upper Canadian River, Arkansas River Basin.

AREA: 129 acres

SHAPE: Triangular; about 2,300 ft. wide by 3,600 ft. long.

SLOPES: 50% is in 0-1% class; 23% in 1-3%; 11% in 3-5%; 8% in 5-8%; 5% in 8-12%; 3% in 12-18%. Aspect N-NE.

SOILS: Parent material - Deep beds of calcareous clays. 73% of area Pullman series having deep soils with dark reddish silty clay loam surface soils and fine textured slowly permeable subsoils. 27% of area predominantly Potter and Mansker series having light brown clay loam surface soils and moderately permeable calcareous clay subsoils underlain by moderately permeable substratum at 12 to 28 inches

EROSION: 3 - 62%; 2 - 3%; 1 - 35%.

LAND CAPABILITY: III - 69%; IV - 4%; VI - 10%; VII - 17%.

SURFACE DRAINAGE: Upper 25% of area overland flow, lower 75% follows two principal waterways - 3,000 ft. and 4,200 ft. long, respectively; drainage density - 27.8 ft. per ac.; southwestern and eastern boundaries artificially defined.

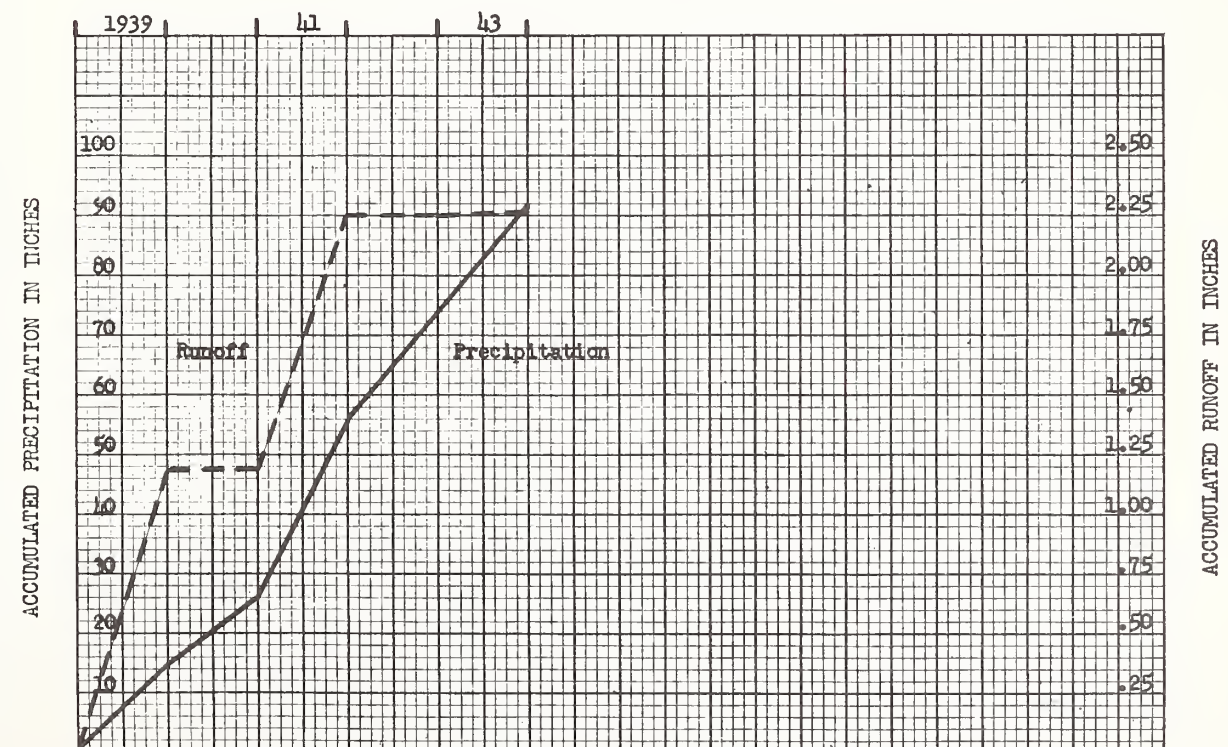
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broad crested, triangular weir with 5:1 side slopes, 6-hr. chart; precipitation - 2 recording gages, 12-hr. charts.

WATERSHED CONDITIONS: Southern 57% of area - fallowed entire summer of 1938; winter wheat planted in 1938, 1939, and 1940; sorghum cane in rows and wheat planted in 1941; wheat planted again in 1942. Upper 43% of area - remained in native pasture of blue grama, side oats grama, and western wheat during 1938-1942; lightly grazed during 1940, 1941, and 1942.

GENERALLY REPRESENTS: Transition from Cimarron-Canadian Breaks to Southern High Plains of the "Panhandle" of Texas and Oklahoma.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station

## (Inches) Vega, Texas, Watershed W-1

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P Q	NR NR	NR NR	0 NR	0.55 T	2.51 .88	2.86 .74	1.98 .19	0.31 0	0.89 0	4.48 1.35	0.11 0	0.10 0	13.79 3.16
1939	P Q	2.14 0	0 0	.12 0	1.37 .10	1.29 0	3.37 .70	1.11 T	2.65 .38	.93 0	.92 0	.10 0	.80 0	14.80 1.18
1940	P Q	.06 0	.59 0	.19 0	.75 0	2.17 T	.53 0	.29 0	1.02 0	.86 T	.49 0	4.39 T	0 0	11.34 T
1941	P Q	.17 0	.19 T	1.94 0	1.14 T	7.76 .75	3.08 .11	3.52 .12	3.79 .08	2.90 T	5.53 .01	.16 0	.03 0	30.21 1.07
1942	P Q	0 0	.34 0	.42 0	3.65 T	.18 0	1.62 T	1.05 T	3.75 T	2.18 T	3.60 0	0 0	.84 0	17.63 T
1943	P Q	.04 0	0 0	0 0	1.68 T	1.96 T	2.20 T	4.24 .01	3.01 T	.91 T	.10 0	.29 0	3.22 T	17.65 .01
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** Av. P ** Av. Q		.48 0	.22 0	.53 0	1.72 .02	2.67 .15	2.16 .16	2.04 .02	2.84 .09	1.56 0	2.13 .02	.99 0	.98 0	18.32 .46
Normal P		.61	.45	1.07	1.40	2.78	2.83	2.17	3.19	2.15	1.82	1.05	.93	20.45

Notes: \*\*Does not include part year amounts for 1938. Stations discontinued Feb. 19, 1944. Normal P based on 31 yr. record (1920-1950) at Vega, Texas. Quality of records: P - good; Q - good. NR denotes no record.



LOCATION: Oldham Co., Tex.; 6 mi. N. of Vega; unnamed branch of upper Canadian River, Arkansas River Basin.

AREA: 95.9 acres

SHAPE: Trapezoidal - opening at small end, about 1,580 ft. wide by 3,210 ft. long.

SLOPES: 66% is in 1-3% class; 33% in 3-5%; 1% in 5-8%. Aspect E-NE.

SOILS: Parent material - Reddish buff highly calcareous clay, friable when moist, hard when dry, massive structure. 71% of area predominantly Pullman series with dark reddish brown silty clay loam topsoils of 5" thickness and blocky clay subsoils. 4% of area predominantly Potter and Mansker series having very brown to black moderately permeable 8" thick topsoils with permeable angular-subangular subsoils. 25% of area unclassified with very shallow moderately permeable soils.

EROSION: 1 - 90%; 2 - 10%.

LAND CAPABILITY: III - 64%; IV - 10%; VI - 25%; VII - 1%.

SURFACE DRAINAGE: Good; principal waterway - 3,900 ft. long; drainage density 28.2 ft. per ac.; overland flow on upper 25% of area. Diversion dike forms unnatural western boundary.

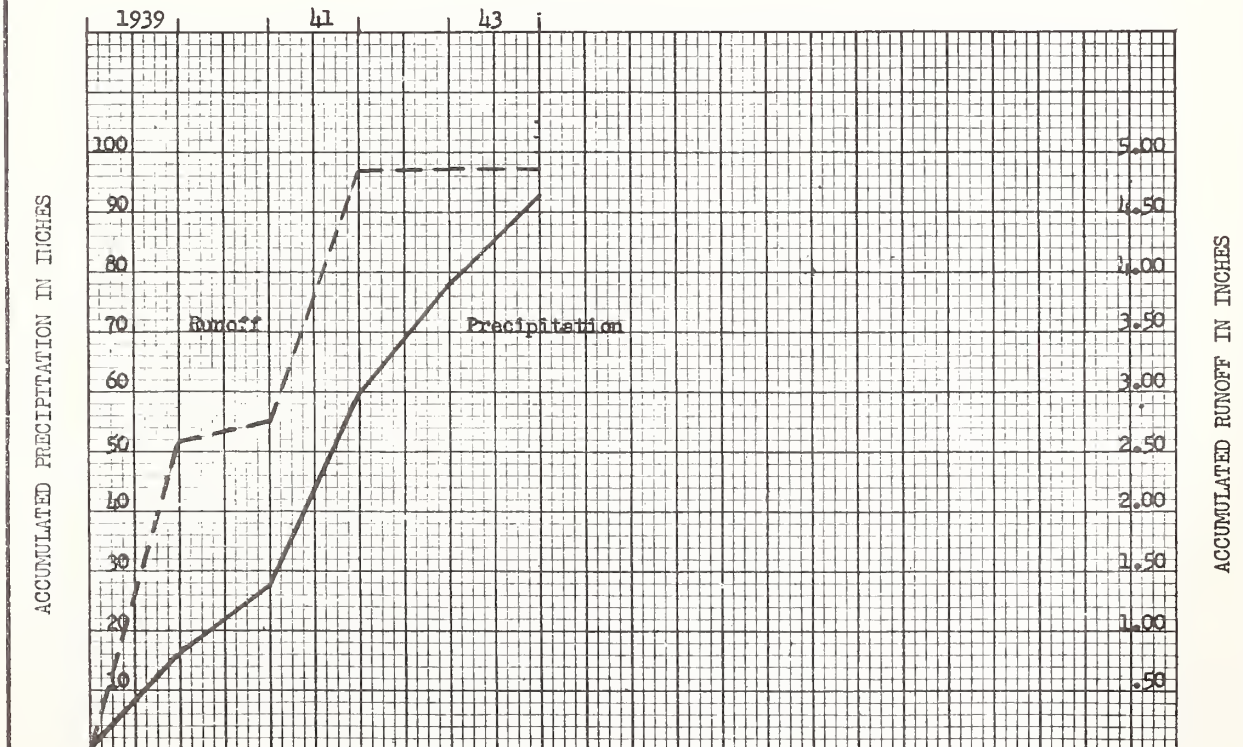
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broad crested, triangular weir with 5:1 side slopes, 6-hr. chart; precipitation - 2 recording gages, 12-hr. charts.

WATERSHED CONDITIONS: Entire watershed is natural pasture. All boundaries except western side follow natural divides and are defined by plowed ridges. During 1938, 1939, and 1940 - principally sidecoats grama, three-awn and sand dropseed grasses on 11% of area; principally buffalo and blue grama grasses on remaining 89%. During 1941 and 1942 - blue grama and buffalo grasses on 87% of area; annual weeds on 13%. Moderate grazing allowed during 1939, 1940, 1941, and 1942. In 1940, due to impassable icy highway, traffic made 5" deep ruts down center of watershed.

GENERALLY REPRESENTS: Transition from Cimarron-Canadian Breaks to Southern High Plains of the "Panhandle" of Texas and Oklahoma.

ACCUMULATED PRECIPITATION AND RUNOFF



MONTHLY PRECIPITATION AND RUNOFF (Inches) Vega, Texas, Watershed W-2

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P	NR	0.97	0	0.53	2.44	2.09	1.72	0.64	1.40	4.07	0.10	0.08	14.04
	Q	NR	0	0	0	1.39	.34	.03	.01	.22	1.64	0	0	3.63
1939	P	2.14	0	.06	1.37	1.56	4.34	1.72	2.46	.89	.82	.06	.78	16.20
	Q	0	0	0	.19	T	1.48	.52	.39	0	0	0	0	2.58
1940	P	.10	.49	.15	.74	2.90	.96	.16	1.26	.46	.18	4.23	0	11.63
	Q	0	0	0	0	.18	0	0	0	0	0	0	0	.18
1941	P	.15	.18	1.89	1.12	7.70	3.18	3.22	4.73	2.88	5.71	.19	.20	31.15
	Q	0	0	.06	0	1.04	.17	.12	.54	.01	.14	0	0	2.08
1942	P	0	.33	.57	3.79	.20	1.91	.54	4.49	3.18	3.47	0	.88	19.36
	Q	0	0	0	.01	0	T	0	.01	0	T	0	0	.02
1943	P	.04	0	0	1.31	1.68	1.60	3.44	1.91	.66	.03	.35	3.36	14.38
	Q	0	0	0	T	T	T	T	T	0	0	0	T	T
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** Av. P		.49	.20	.53	1.67	2.81	2.40	1.82	2.97	1.61	2.04	.97	1.04	18.55
** Av. Q		0	0	.01	.04	.24	.33	.13	.19	T	.03	0	T	.97
Normal P		.61	.45	1.07	1.40	2.78	2.83	2.17	3.19	2.15	1.82	1.05	.93	20.45

Notes: \*Does not include part year amounts for 1938. Stations discontinued Feb. 19, 1944. Normal P based on 31 yr. record (1920-1950) at Vega, Texas. Quality of records: P - good; Q - good. NR denotes no record.

LOCATION: McLennan Co., Texas; 15 mi. E. of Waco; Brazos River Basin.

AREA: 42.0 ac.

SHAPE: Fan, about 1500 ft. wide by 1440 ft. long.

SLOPES: 32% is in less than 1% class; 66% in 1-2%; 2% in 3-6%. Aspect S.

SOILS: Residual; soils of varying texture and structure, but all formed from beds of the Taylor marl. These soils generally have slow internal drainage. Houston-Hunt clay - 41%; Crockett clay loam - 17%. Crockett fine sandy loam - 23%; Wilson clay - 11%; Wilson clay loam - 8%.

EROSION: 2 - 15%; 3 - 45%; 4 - 24%; 5, 16%.

LAND CAPABILITY: I - 22%; II - 18%; III - 42%; IV - 3%; VI - 15%.

SURFACE DRAINAGE: Good; no well defined waterway, drainage by poorly defined field gullies and rills; length of principal waterway 1440 ft.

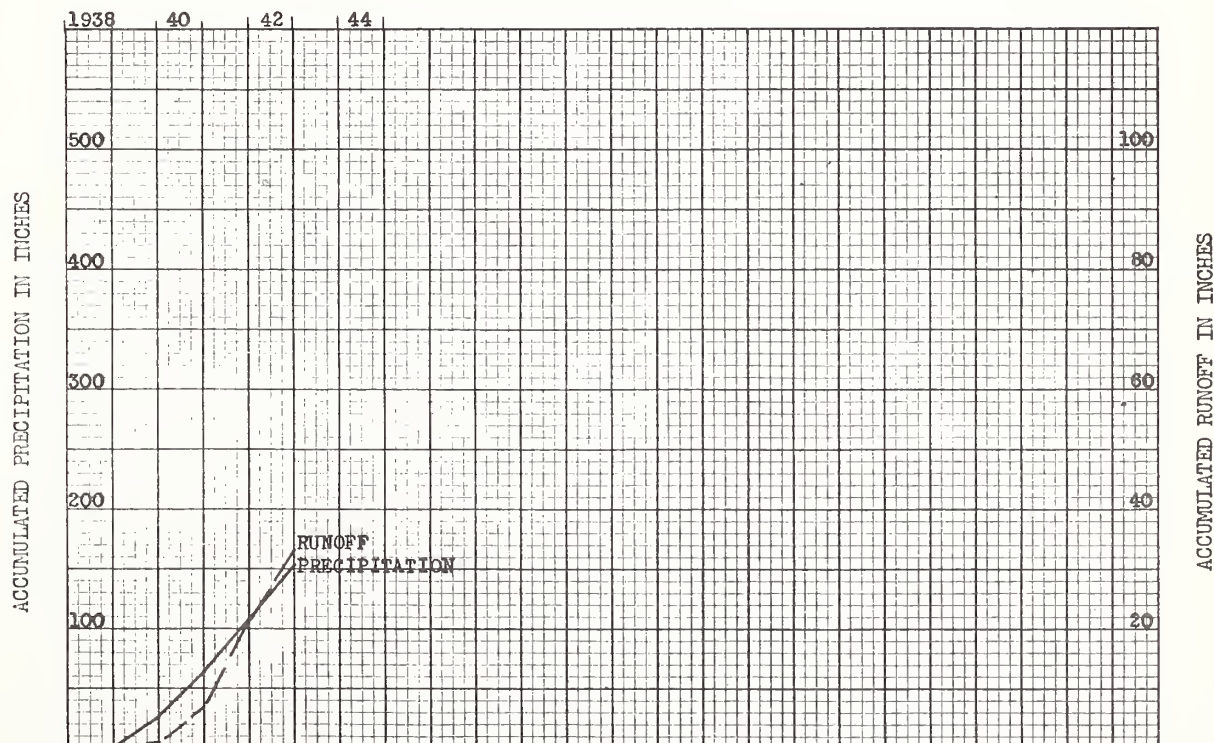
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified Parshall flume with weir for measuring low flows; precipitation - one weighing recording rain gauge near center of area.

WATERSHED CONDITIONS: 84% cultivated land; 16% pasture. Straight row cultivation with no special conservation measures through 1939. Strip cropping with about 25% of area in broadcast strips, 1940 through 1943.

GENERALLY REPRESENTS: Areas of mixed land use in the Blacklands of Coastal Plains in Texas on Wilson and Crockett soils with a large percentage of cultivated land.

#### ACCUMULATED PRECIPITATION AND RUNOFF





MONTHLY PRECIPITATION AND RUNOFF (Inches) Riesel, Texas Watershed A

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P						4.47	2.49	0.28	1.53	0.21	0.68	2.36	12.02
Q						.20	0	0	0	0	0	0	.20
1939 P	3.96	2.87	1.01	0.90	3.98	4.15	.28	4.32	.11	1.70	2.37	.90	26.55
Q	.02	.05	0	0	.15	.32	0	.04	0	0	0	0	.58
1940 P	.98	2.82	.42	3.68	1.79	6.01	.67	2.17	.76	2.84	8.30	3.73	34.17
Q	0	.03	0	*.27	0	.52	.03	T	0	.01	4.27	1.21	6.34*
1941 P	2.48	6.92	3.89	4.79	6.63	6.70	4.27	3.20	1.00	3.70	2.04	2.65	48.27
Q	1.59	2.94	1.38	.70	3.64	2.60	.87	.19	0	.02	0	T	13.93
1942 P	.48	1.61	.83	7.37	4.28	7.08	.88	2.14	9.95	2.69	2.04	2.75	42.10
Q	0	0	0	2.96	.87	3.24	0	0	5.07	0	.27	.18	12.59
1943 P	.74	.04	2.06	1.49	5.59	2.00	#						11.92
Q	0	0	.13	.04	.72	.66	#						1.55
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LOCATION: McLennan Co., Texas; 14 mi. ESE of Waco; Brazos River Basin.

AREA: 579 ac.

SHAPE: Roughly rectangular, approximately 1 1/4 mi. long by 3/4 mi. wide.

SLOPES: 14% is in less than 1% class; 78% in 1-5%; 10% in 5-6%. Aspect S.

SOILS: Residual; soils of varying texture and structure, but all formed from beds of the Taylor marl. Internal drainage is slow except when there are deep soil cracks. Deep, fine textured, slowly permeable - 46%; deep, medium and fine textured, very slowly permeable soils - 54%. The deep, fine textured, slowly permeable soils are noteworthy for the extent and size of shrinkage cracks caused (by drying).

EROSION: 2 - 17%; 3 - 51%; 4 - 10%; +. 22%.

LAND CAPABILITY: I - 6%; II - 38%; III - 49%; IV - 1%; VI - 6%.

SURFACE DRAINAGE: Good; with few well defined waterways, much of drainage by poorly defined field gullies and rills; length of principal waterway 7,760 ft.

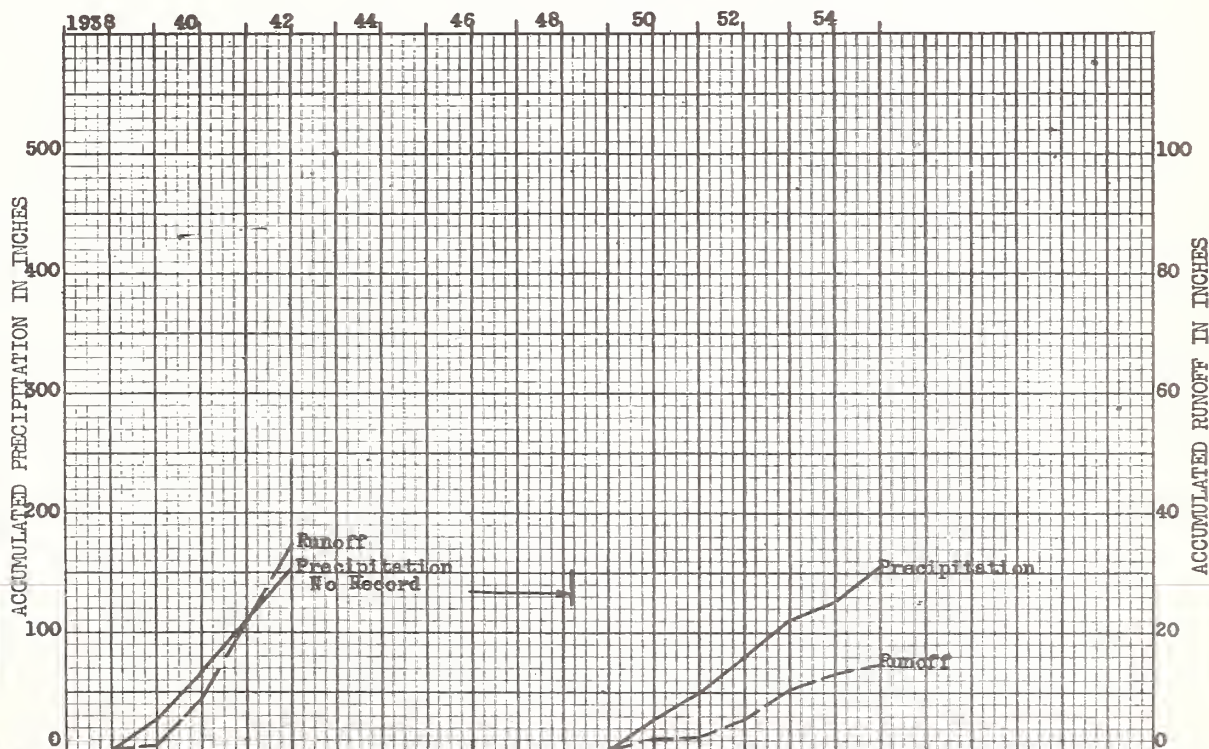
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - current meter station with artificial low water control, 12 hr. recorder chart; precipitation - three weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: 1959 land use: 81%, cultivated; 14%, permanent grass; 4%, roads; 1%, farmsteads. Cultivation generally with straight rows and with little attention to conservation practices. There was a considerable amount of terracing in this area during 1940 and 41, and there has been a gradual increase in amount of conservation work and a decrease in the amount of cultivated land. 1955 land use: total cultivated 54%, with 8% straight rows, 9% contour rows, and 37% terraced with contour rows; total permanent grasses 41%, with 6% brushy pasture, 31% unimproved pasture, both in poor to fair condition, and 4% pasture in good condition; roads 4%; farmsteads 1%.

GENERALLY REPRESENTS: Areas of mixed land use in the Blacklands of Coastal Plain in Texas with considerable variation in surface soil texture, but all with deep, slowly or very slowly permeable soils.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



Riesel, Texas, Watershed C

Notes: #Station discontinued June 30, 1943, to March 1, 1949. \*\*Does not include the part year amounts for 1938, 1943, and 1949. Quality of Records: P - good; Q - good. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years.



LOCATION: McLennan Co., Texas; 15 mi. E. of Waco; Brazos River Basin.

AREA: 1110 ac. (1.73 sq. mi.)      SHAPE: Roughly rectangular, approximately 1 3/4 mi. long by 1 mi. wide.

SLOPES: 15% is in less than 1% class; 72% in 1-5%; 13% in 3-6%. Aspect S.

SOILS: Residual; soils of varying texture and structure, but all formed from beds of the Taylor marl. Internal drainage is slow except when there are deep soil cracks. Deep, fine textured, slowly permeable soils - 50%; deep, medium and fine textured, very slowly permeable soils - 50%. The deep, fine textured, slowly permeable soils are noteworthy for the extent and size of shrinkage cracks  
EROSION: 2 - 18%; 3 - 52%; 4 - 9%; +, 21%. (caused by drying.)

LAND CAPABILITY: I - 6%; II - 43%; III - 44%; IV - 1%; VI - 5%; VII - 1%.

SURFACE DRAINAGE: Good, but with few well defined waterways, much of drainage by poorly defined field gullies and rills draining to road ditches; length of principal waterway 11,700 ft.

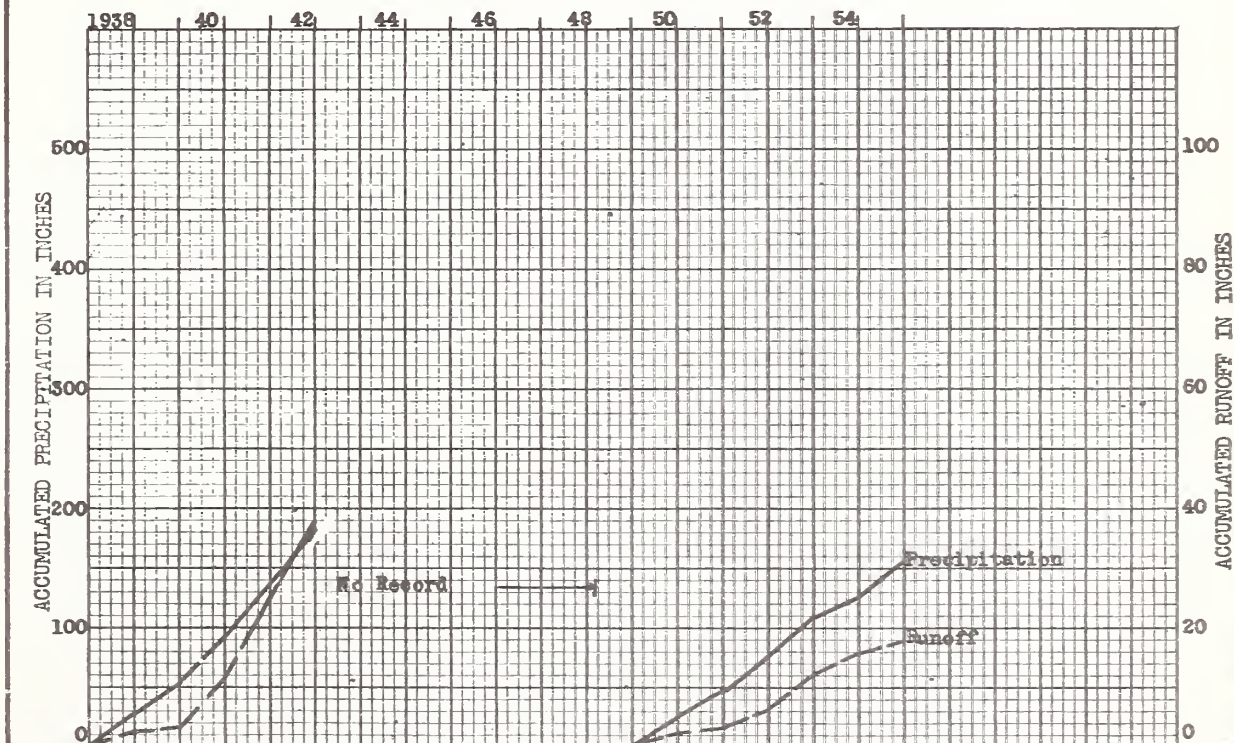
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - current meter station with artificial low water control, 12 hr. recorder chart; precipitation - four weighing recording raingages until 1943, three from 1949-55.

WATERSHED CONDITIONS: 1939 land use: 84%, cultivated; 12%, permanent grass; 3%, roads; 1%, farmsteads. Cultivation generally with straight rows with little attention to conservation practices. There has been a gradual increase in the amount of conservation work and a decrease in the amount of cultivated land. 1955 land use: total cultivated land 62%, with 8% straight rows, 11% contour rows, and 43% terraced with contour rows; total permanent grasses 34%, with 30% poor to fair pasture, and 4% pasture in good condition; roads 3%; farmsteads 1%.

GENERALLY REPRESENTS: Areas of mixed land use in the Blacklands of Coastal Plain in Texas with considerable variation in surface soil texture, but all with deep, slowly or very slowly permeable soils.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Riesel, Texas, Watershed D

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P												3.76	3.76
Q												.12	.12
1938 P	3.89	2.39	3.59	3.92	2.33	4.39	2.31	0.37	0.90	0.03	0.90	2.34	27.36
Q	1.12	.33	.50	.95	T	.21	0	0	0	0	0	0	3.11
1939 P	3.88	2.98	1.10	.91	4.20	4.00	.36	4.01	.25	1.90	2.24	.89	26.72
Q	.08	.13	0	0	.30	.22	0	0	0	0	0	0	.73
1940 P	1.09	2.86	.41	4.65	2.25	6.74	1.44	3.09	.78	2.99	9.37	3.74	39.41
Q	0	T	0	.49	.15	1.06	.45	.03	0	.02	4.23	1.33	7.76
1941 P	2.57	5.25	3.95	4.29	5.91	6.40	4.39	2.17	.77	2.94	1.94	2.59	43.17
Q	1.48	2.61	1.37	.75	2.64	2.38	1.28	T	0	T	T	.03	12.54
1942 P	.44	1.64	.88	7.04	4.27	7.64	.85	2.17	10.04	2.61	2.65	3.00	43.23
Q	0	T	0	2.27	.83	3.43	0	0	4.46	0	.45	.60	12.04
1943 P	.78	.03	2.26	1.25	5.37	2.31	#						12.00
Q	.03	0	.37	.06	.70	.59	#						1.75
1949 P			2.04	3.67	1.37	5.56	2.63	1.15	.32	4.87	.23	2.57	24.41
Q			.09	.15	T	.78	.14	0	0	.05	0	0	1.21
1950 P	1.86	3.86	.23	3.35	2.66	2.70	4.54	.09	3.77	1.44	1.13	.38	26.01
Q	.01	.96	0	.08	.06	T	1.10	0	T	0	0	0	2.21
1951 P	1.22	2.48	2.05	2.31	2.54	4.11	.22	.43	5.77	.79	.84	.43	23.19
Q	0	.01	T	0	.07	0	0	0	.74	0	0	0	.82
1952 P	.69	2.58	2.75	4.26	4.89	.21	.71	0	.42	0	6.95	4.70	28.16
Q	0	0	.03	.21	.77	0	0	0	0	0	.37	1.64	3.02
1953 P	.63	1.47	4.00	2.67	6.13	.22	.48	2.78	1.44	6.19	1.61	4.31	31.93
Q	T	0	1.31	.28	3.11	0	0	0	0	.84	.02	.78	6.34
1954 P	1.64	.65	.59	3.90	3.92	.60	1.15	.58	.86	.97	2.79	.17	17.82
Q	.13	0	0	1.07	2.09	T	0	0	0	0	0	0	3.29
1955 P	2.38	3.54	2.84	2.75	5.84	3.64	1.11	1.24	1.67	1.00	.88	.99	27.88
Q	0	.15	.42	.60	.66	.18	0	0	0	0	0	0	2.01
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** Av. P	1.84	2.70	2.04	3.64	4.09	3.70	1.60	1.54	2.42	1.90	2.85	2.14	30.46
** Av. Q	.26	.38	.33	.61	.97	.68	.26	T	.47	.08	.46	.40	4.90
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** #Station discontinued July 1, 1943, to March 1, 1949. \*\*Does not include the part year amounts for 1937, 1943, and 1949. Quality of Records: P-good; Q-good, except 1953-54, fair. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years.



LOCATION: McLeeman and Falls Cos., Texas; 16 mi. S. E. of Waco; Brazos River Basin.

AREA: 4380 ac. (6.84 sq. mi.)      SHAPE: Long, narrow, approximately 4 1/3 mi. long by 1 1/2 mi. wide.

SLOPES: 19% is in less than 1% class; 68% in 1-3%; 12% in 3-6%; 1% in more than 6%. Aspect SSE.

SOILS: Residual; soils of varying texture and structure, but all formed from beds of Taylor marl. Internal drainage is slow except when there are deep soil cracks. Deep, fine textured, slowly permeable soils - 65%; deep medium and fine textured, very slowly permeable soils - 30%; shallow, fine textured slowly permeable soils - 5%. The deep, fine textured, slowly permeable soils are noteworthy.

EROSION: 2 - 50%; 3 - 35%; 4 - 4%; +, 11%. (for the extent and size of cracks caused by drying.)

LAND CAPABILITY: I - 5%; II - 62%; III - 26%; IV - 1%; V - 1%; VI - 3%; VII - 2%.

SURFACE DRAINAGE: Good; few well defined lateral drainageways; length of principal waterway 25,680 ft.

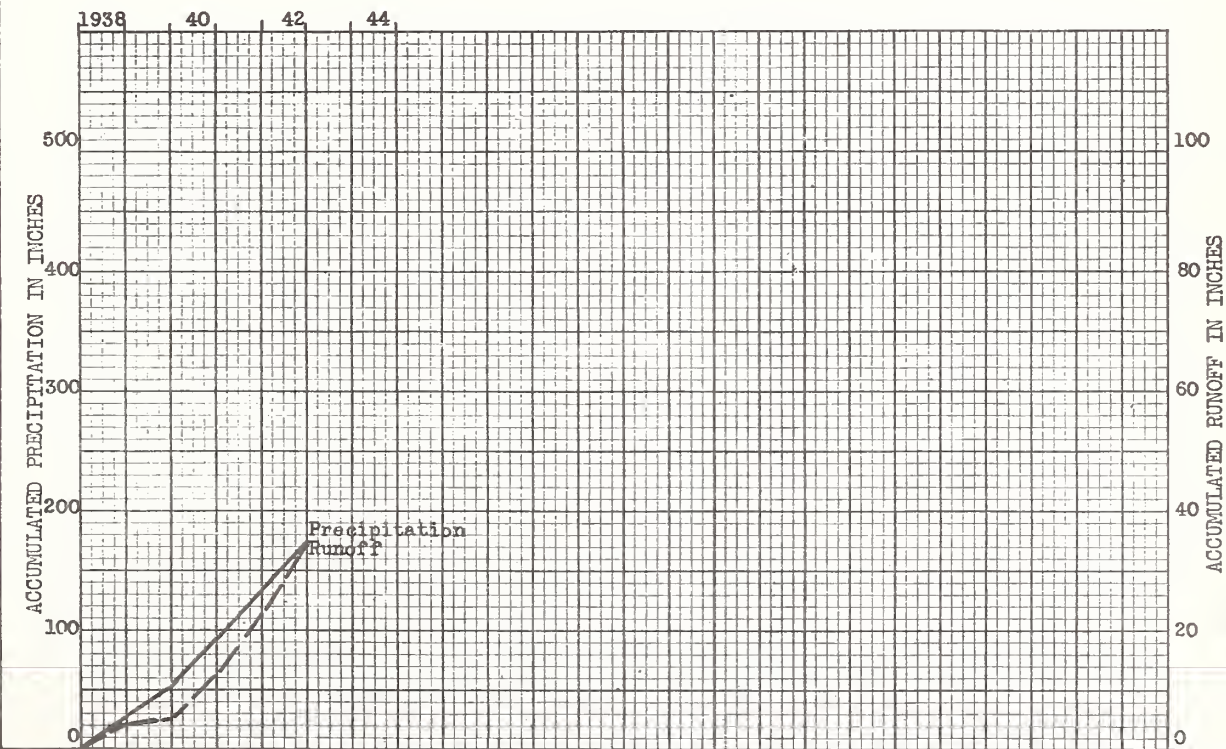
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - current meter station with artificial low water control, 6 hr. recorder chart; precipitation - ten weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: 1939 land use; 81% cultivated, 16% permanent grass, 2% roads, 1% farmsteads. Cultivation generally with straight rows with little attention to conservation practices. There was some increased conservation work, particularly terracing, during 1940 and 1941. The major portion of this work was in the upper portion of the watershed above gaging stations C and D.

GENERALLY REPRESENTS: Areas of the Blacklands of Coastal Plains in Texas with a high percentage of cultivated land. The variation in soils is not unusually large for areas of this size.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Riesel, Texas, Watershed-C

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P	4.12	2.61	3.20	3.87	2.42	3.90	1.98	0.48	0.87	0.10	0.90	2.56	27.01
Q	1.81	.68	.68	.94	.01	.07	0	0	0	0	0	0	4.19
1939 P	3.91	2.92	1.12	.84	4.53	3.16	.34	3.04	.53	1.95	2.24	.95	25.53
Q	.02	.06	T	0	.35	.04	0	0	0	0	0	0	.47
1940 P	1.04	2.87	.49	4.46	2.15	6.90	1.59	2.86	.93	3.30	9.55	3.62	39.76
Q	0	0	0	.26	.11	.93	.39	0	0	.06	4.82	1.30	7.87
1941 P	2.09	5.27	3.50	4.12	5.19	6.89	3.93	1.39	.64	3.08	2.09	2.47	41.26
Q	1.53	2.69	1.13	.60	1.81	2.53	.81	0	0	0	0	0	11.10
1942 P	.51	1.81	.95	6.79	4.33	8.04	.86	1.31	9.36	2.45	2.93	3.40	42.74
Q	0	T	0	1.72	.71	4.31	0	0	3.13	0	.48	.83	11.18
1943 P	.85	.09	2.16	1.35	4.82	2.24	#						11.51
Q	.05	T	.25	.09	.39	.43	#						1.21
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** Av. P	2.45	3.10	1.85	4.02	3.72	5.78	1.74	1.82	2.47	2.18	3.54	2.60	35.27
** Av. Q	.67	.69	.36	.70	.60	1.58	.24	0	.63	.01	1.06	.43	6.97
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** #Station discontinued July 22, 1943. \*\*Does not include the part year amounts for 1943.  
 Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco  
 with length of records from 10 to 65 years. Quality of records: P - good; Q - fair.

LOCATION: McLennan and Falls Co., Texas; 15 mi. S. E. Waco; Brazos River Basin.

AREA: 5860 ac. (9.16 sq. mi.) . SHAPE: Long narrow with few side tributaries. Approximately 6 mi. long, ave. 1.5 mi. wide.

SLOPES: 17% is in 0-1% class; 69% in 1-3%; 11% in 3-6%; 3% in over 6%. Aspect SSE.

SOILS: Residual; soils of varying texture and structure but all formed from beds of the Taylor marl. Internal drainage is slow except when there are deep soil cracks. Deep, fine textured, slowly permeable - 71%; deep, medium to fine textured, very slowly permeable - 23%; shallow, fine textured, slowly permeable - 6%. The deep fine textured slowly permeable soils are noteworthy for the extent  
EROSION: 2 - 60%; 3 - 28%; 4 - 3%; +, 9%. (and size of shrinkage cracks caused by drying,

LAND CAPABILITY: I - 7%; II - 64%; III - 23%; IV - 1%; V - 1%; VI - 2%; VII - 2%.

SURFACE DRAINAGE: Good, except for small areas adjoining main water courses; principal waterway 37,300 ft. Few well defined lateral drainageways.

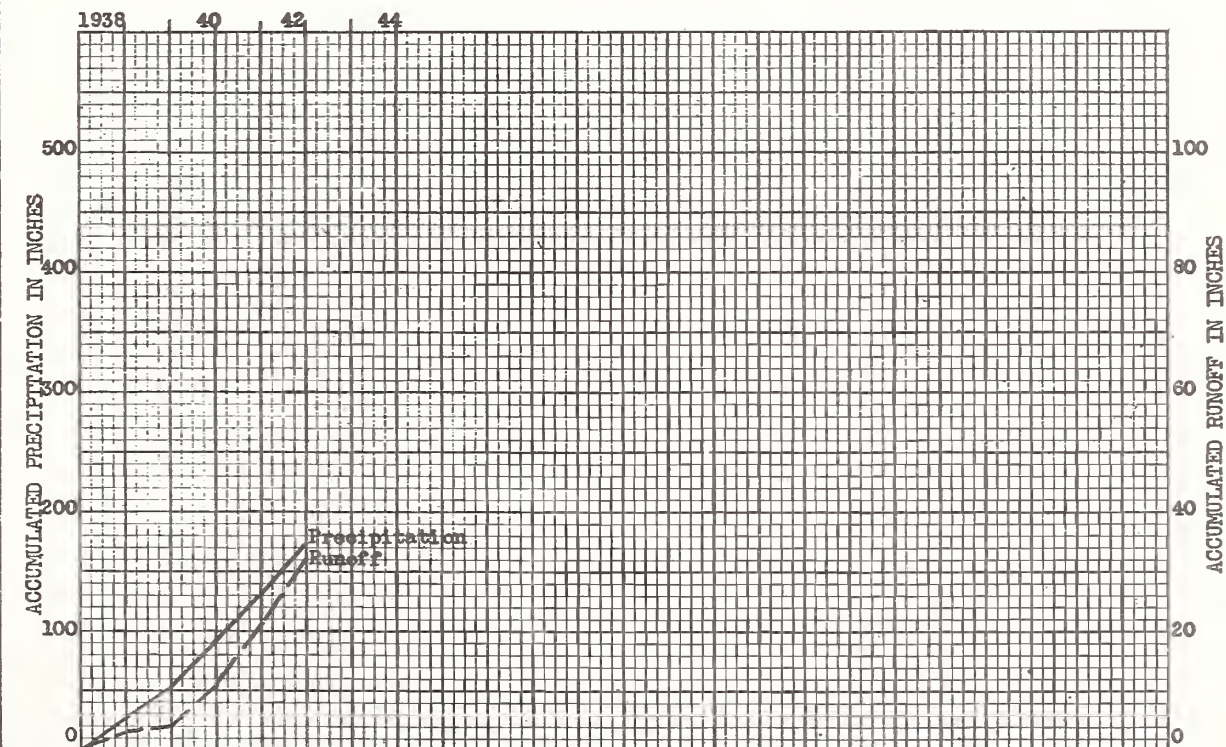
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - current meter station with artificial low water control, 6 hr. recorder chart; precipitation - twelve weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: 1939 land use; 81% cultivated, 16% permanent grass, 2% roads, 1% farmsteads. Cultivation generally with straight rows with little attention to conservation practices. There was some increase in conservation work, particularly terracing, during 1940 and 1941. The major portion of this work was in the upper portion of the watershed above gaging stations C and D.

GENERALLY REPRESENTS: Areas of Blacklands of Coastal Plains in Texas with a high percentage of cultivated lands. The variation in soils is not unusually large for areas of this size.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

Sieml. Texas Watershed I

Notes: #Station discontinued June 30, 1943. \*\*Does not include the part year amounts for 1937 and 1945. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of Records: P - good; Q - good.



LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 176 ac.

SHAPE: Roughly rectangular, about 2000 ft. wide by 3830 ft. long.

SLOPES: 11% is in less than 1% class; 75% in 1-3%; 14% in 3-6%. Aspect SSE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 67%; Houston black clay, shallow phase - 33%; poorly defined division between topsoil and subsoil. These soils and particularly the Houston black clay are noted for the formation of large, extensive cracks upon drying.

EROSION: 2 - 98%; 3 - 2%; 4, T.

LAND CAPABILITY: I - 12%; II - 78%; III - 7%; V - 1%; VI - 3%.

SURFACE DRAINAGE: Good; much of drainage by poorly defined field gullies and rills; length of principal waterway 5400 ft.

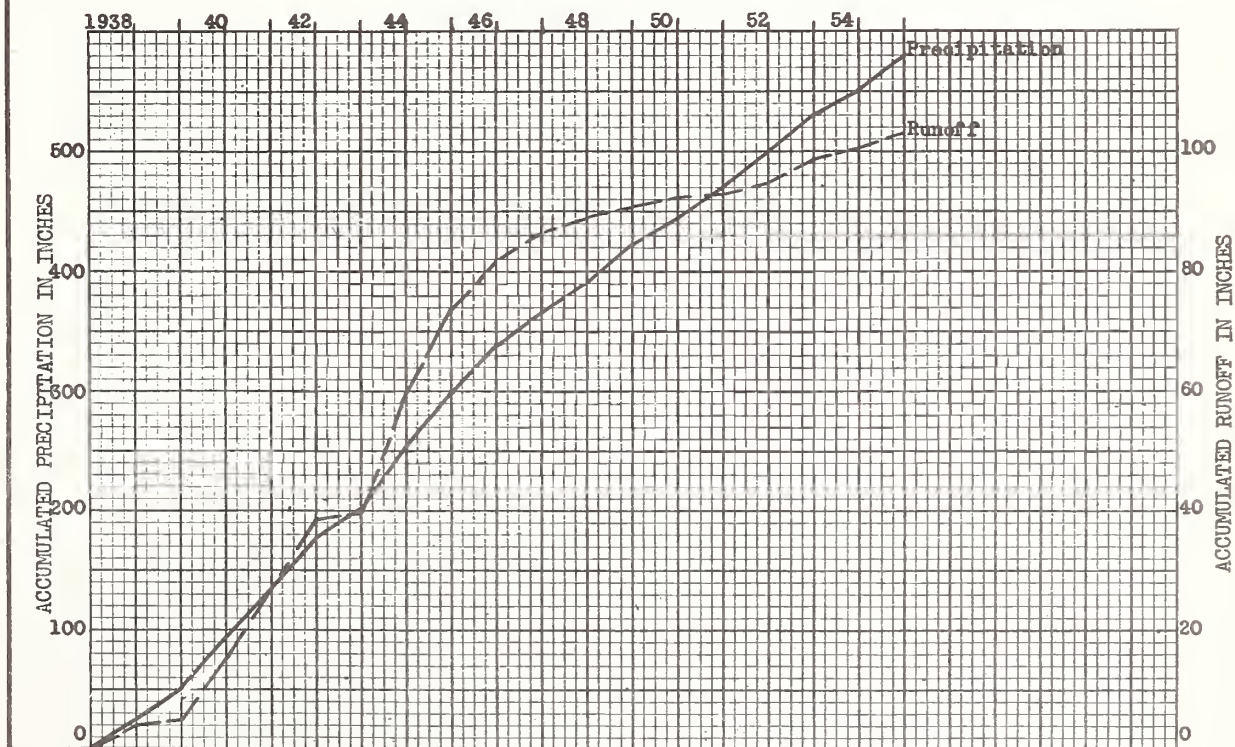
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 15 ft. Parshall flume, with weir for measuring low flows, 6 hr. chart; precipitation - four weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads, 1.2%; farmsteads, 1.8%; permanent grasses, 9.9% in 1938-39, 10.6% in 1940-42, 12.2% in 1943-45, 16.3% in 1946-47, 18.3% in 1947-55; remainder in ordinary farm crops with straight row cultivation and approximately 25% of cultivated area in oats each year, no legumes grown or special conservation practices used. This is an area of government owned land maintained with only minor land use or cultural changes.

GENERALLY REPRESENTS: Areas in the Blacklands of Coastal Plains in Texas on deep, fine textured, slowly permeable soils with a large portion of the area in cultivation.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Riesel, Texas Watershed W-1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P							1.22	0.75	4.43	2.85	3.55	3.63	16.43
Q							T	0	.04	T	.14	.54	.72
1938 P	4.11	2.84	2.15	3.74	2.41	3.27	2.33	.97	.85	.17	.75	2.74	26.33
Q	2.10	1.10	.17	.82	.06	.06	.02	.01	.01	0	0	0	4.35
1939 P	3.86	2.92	1.39	1.05	4.28	2.68	.30	2.25	.30	1.83	2.39	1.11	24.36
Q	.05	.11	.03	.02	.71	.03	.01	0	0	0	0	0	.96
1940 P	1.00	2.74	.56	4.59	1.94	7.03	1.90	2.26	1.37	4.63	10.58	3.87	42.47
Q	0	0	0	.33	.02	.69	.46	0	0	.32	6.00	1.38	9.20
1941 P	3.11	5.64	3.98	3.92	5.15	6.69	3.18	1.48	.93	3.43	2.50	2.49	42.50
Q	1.86	2.94	1.42	.66	1.62	3.01	.36	.02	.01	.02	.04	.06	12.02
1942 P	.91	1.90	1.05	6.33	4.61	7.45	.81	.96	8.44	2.60	3.40	4.03	42.49
Q	.02	.08	.03	1.61	.85	3.20	.07	.02	2.85	.04	1.13	1.65	11.51
1943 P	.91	.17	2.12	1.26	4.74	2.30	3.35	.26	1.93	2.74	2.09	3.14	25.01
Q	.13	.03	.21	.14	.35	.55	.02	T	0	0	.01	.04	1.48
1944 P	4.85	6.13	3.73	7.01	13.17	1.36	1.37	1.32	1.44	.11	7.20	4.68	52.37
Q	1.21	3.75	1.56	3.72	9.11	.13	.02	T	0	0	.64	1.11	21.25
1945 P	2.30	2.97	7.20	5.88	3.00	4.78	2.07	3.97	3.63	3.43	.86	5.02	45.11
Q	.96	.69	3.63	3.25	.42	.61	.11	.02	.09	.55	.04	2.23	12.60
1946 P	2.91	3.04	3.91	2.74	9.65	2.02	1.15	1.76	3.22	1.67	5.24	2.33	39.64
Q	.43	1.10	1.27	.19	4.27	.17	.03	T	T	T	.57	.52	8.55
1947 P	3.76	.54	4.48	2.91	4.18	.57	.64	1.79	1.09	.35	1.40	3.52	25.23
Q	1.67	.06	1.47	.30	1.06	.05	.01	0	0	0	0	0	4.62
1948 P	2.06	1.99	1.29	6.01	5.00	1.14	1.27	1.42	1.41	.70	1.06	1.46	24.81
Q	0	T	.01	1.57	.69	.01	.01	0	0	0	0	0	2.29
1949 P	4.07	1.53	2.94	4.24	1.05	4.63	4.85	1.78	.18	4.70	.14	3.20	33.31
Q	0	T	.26	.40	.01	.28	1.09	T	0	.01	0	0	2.05
1950 P	2.25	3.60	.35	3.78	2.97	2.49	1.86	.05	2.31	.89	1.02	.42	21.99
Q	.04	1.16	.03	.27	.08	.06	.01	0	0	0	0	0	1.65
1951 P	1.86	2.29	1.83	2.56	3.38	4.33	.05	.10	5.42	1.13	1.10	.44	24.49
Q	0	.01	.05	.09	.19	0	0	0	0	0	0	0	.34
1952 P	1.59	2.85	3.21	4.83	4.45	.99	.62	0	.63	0	7.03	4.68	30.88
Q	0	0	.01	.17	.54	0	0	0	0	0	.04	1.03	1.79
1953 P	.55	2.30	3.63	3.20	6.26	.41	.50	3.78	2.13	5.91	.88	4.30	33.85
Q	T	.09	1.07	.30	2.46	T	0	0	.02	.21	0	.18	4.33
1954 P	1.30	.60	.41	3.24	4.05	.95	2.07	.72	1.14	.92	3.19	.16	18.75
Q	.03	T	T	.22	1.33	.01	0	0	0	0	0	0	1.59
1955 P	2.24	4.39	3.88	2.62	5.56	3.37	1.16	1.16	1.02	.83	.79	.87	27.89
Q	0	.24	1.19	.40	.34	.18	0	0	0	0	0	0	2.35
P Q													
** Av. P	2.42	2.69	2.67	3.88	4.77	3.14	1.64	1.45	2.08	2.00	2.87	2.69	32.30
** Av. Q	.47	.63	.69	.80	1.34	.57	.12	T	.17	.06	.47	.46	5.71
Normal P	2.38	2.63	2.94	3.97	4.15	3.13	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** \*\*Does not include the part year amounts for 1937. Quality of record: P - good; Q - excellent  
 Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of  
 Waco with length of records from 10 to 65 years.



LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 130 ac.

SHAPE: Fan, about 2800 ft. wide by 2900 ft. long.

SLOPES: 5% is in less than 1% class; 74% in 1-3%; 21% in 3-6%. Aspect E.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 70%; Houston black clay, gravelly phase - 16%; Houston black clay, shallow phase - 13%; Trinity clay - 1%. Poorly defined division between topsoil and subsoil. All these soils and particularly the Houston black clay are noted for the formation of large, (extensive cracks upon drying).

EROSION: 2 - 90%; 3 - 9%; +, 1%.

LAND CAPABILITY: I - 4%; II - 78%; III - 17%; IV - 1%.

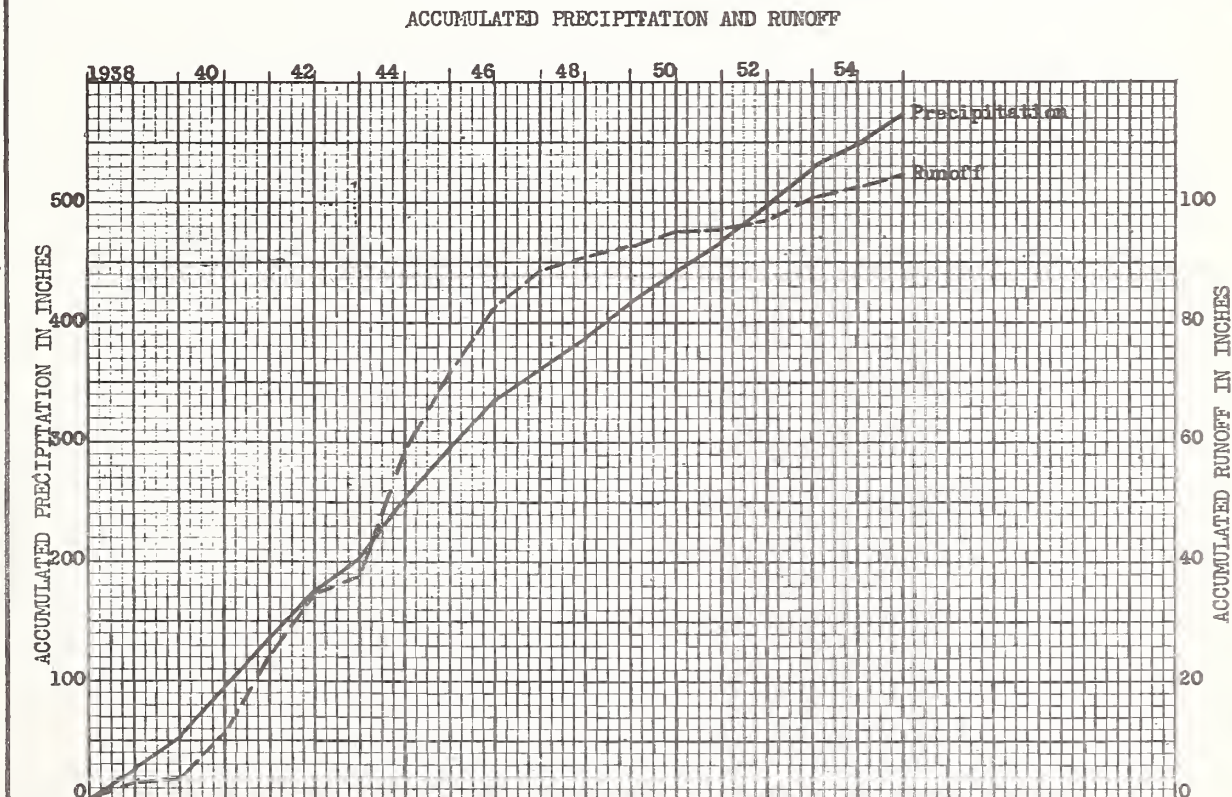
SURFACE DRAINAGE: Good; much of drainage by poorly defined field gullies and rills; two principal drainageways 3100 ft. and 1700 ft. long.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 15 ft. Parshall flume with weir for measuring low flows, 6 hr. chart; precipitation - two weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads, 1.9%; farmsteads, 1.0%; permanent grasses, 31.5%; cropland, 65.6%. Cropland farmed with straight rows and approximately 25% of the cropland in oats each year, no legumes grown or special conservation practices used. This is an area of government owned land maintained with only minor land uses or cultural changes.

GENERALLY REPRESENTS: Areas in the Blacklands of Coastal Plains in Texas on deep, fine textured, slowly permeable soils and mixed land use.



Cooperative research project of USDA and Texas Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Riesel, Texas, Watershed W-2

Year \ Month	Jan..	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P							1.22	0.75	4.43	2.85	3.55	3.63	16.43
Q							.02	0	.04	T	.12	.43	.61
1938 P	4.11	2.83	2.16	3.74	2.38	3.27	2.17	.86	.83	.22	.68	2.69	25.94
Q	1.05	.81	.21	.70	.10	.13	.02	T	0	0	0	T	3.02
1939 P	3.78	2.89	1.35	1.18	4.90	2.54	.29	2.39	.24	1.91	2.41	1.19	25.07
Q	.04	.11	.07	.01	.50	.03	0	0	0	0	0	0	.76
1940 P	.98	2.73	.58	4.57	1.72	6.60	1.91	1.78	1.23	4.84	10.11	3.88	40.93
Q	0	T	0	.12	T	.26	.40	0	0	.13	5.66	1.49	8.06
1941 P	3.12	5.40	3.87	3.85	5.01	6.66	3.00	1.17	.83	3.26	2.42	2.46	41.05
Q	2.06	3.13	1.69	.86	1.67	3.14	.30	.08	.01	.01	.01	.05	13.01
1942 P	.52	1.77	.95	6.40	4.19	7.79	.82	1.28	8.14	2.66	3.36	4.30	42.18
Q	.03	.07	.05	1.38	.78	3.48	.09	T	2.10	.05	.77	2.05	10.85
1943 P	.90	.15	2.03	1.22	4.98	2.22	4.14	.25	1.86	2.54	2.06	2.97	25.32
Q	.36	.15	.26	.22	.30	.56	.07	T	0	0	0	.01	1.93
1944 P	4.80	6.14	3.55	6.89	12.92	1.05	.89	1.41	1.84	.08	7.10	4.72	51.39
Q	1.02	3.77	1.79	3.66	9.47	.21	.06	0	0	0	.55	1.27	21.80
1945 P	2.28	2.93	6.93	5.81	2.81	4.60	2.34	3.45	3.59	3.33	.82	5.02	43.91
Q	.88	.74	3.06	*3.03	.46	.67	.25	.06	.07	.62	.11	2.56	12.51
1946 P	2.94	3.16	3.82	2.75	9.13	2.03	1.17	1.92	3.52	1.88	5.21	2.24	39.77
Q	.72	1.61	1.51	.37	4.34	.35	.09	T	.01	T	.53	.72	10.25
1947 P	3.81	.52	4.43	2.93	4.41	.67	.28	1.90	1.12	.27	1.40	3.62	25.36
Q	2.22	.31	2.12	.51	1.31	.17	.02	0	0	0	0	0	6.66
1948 P	2.05	2.06	1.44	6.01	5.00	1.14	1.27	1.42	1.41	.70	1.06	1.46	25.02
Q	0	T	.02	1.66	.66	.03	.01	0	0	0	0	0	2.38
1949 P	4.12	1.66	3.05	3.83	1.08	4.59	4.52	1.88	.22	4.63	.13	3.12	32.83
Q	T	.01	.30	.30	.07	.31	.76	T	0	T	0	0	1.75
1950 P	2.14	3.51	.32	3.71	2.65	2.57	2.03	.07	2.44	.88	.92	.45	21.69
Q	.07	1.40	.14	.35	.23	.13	.02	0	0	0	0	0	2.34
1951 P	1.70	2.34	1.88	2.42	3.71	4.29	.05	.15	5.53	.96	1.18	.45	24.66
Q	0	T	0	0	.02	.09	0	0	0	0	0	0	.11
1952 P	1.40	2.80	3.22	4.86	4.22	.69	.85	0	.71	0	6.91	4.69	30.35
Q	0	0	0	.09	.42	0	0	0	0	0	.01	.90	1.42
1953 P	.56	2.33	3.31	3.23	6.44	.45	.63	4.04	2.19	5.62	.79	4.19	33.78
Q	.01	.11	.91	.22	2.16	T	0	0	0	.13	T	.21	3.75
1954 P	1.26	.61	.35	3.25	3.86	.78	2.03	.73	1.04	.95	3.17	.16	18.19
Q	.16	.09	.04	.15	1.15	.01	0	0	0	0	0	0	1.61
1955 P	2.19	4.42	3.50	2.57	5.50	3.17	1.29	1.40	1.34	.67	.74	.79	27.58
Q	0	.13	.88	.47	.32	.10	0	0	0	0	0	0	1.90
P													
Q													
** Av. P	2.37	2.68	2.60	3.85	4.72	3.06	1.65	1.45	2.12	1.97	2.80	2.69	31.96
** Av. Q	.48	.69	.72	.78	1.33	.54	.12	.01	.12	.05	.42	.51	5.77
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

Notes: \* Partially estimated. \*\*Does not include the part year amounts for 1937.

Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of Records: P - good; Q - excellent, except for April 1945, fair.

LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 42.3 ac.

SHAPE: Broad fan, about 1700 ft. wide by 1300 ft. long.

SLOPES: 99% is in 1-3% class; 1% in 3-6%; Aspect ESE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 99%; Houston black clay, shallow phase - 1%; poorly defined division between topsoil and subsoil. These soils are noted for the formation of large extensive cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 98%; III - 2%.

SURFACE DRAINAGE: Good; length of principal waterway 1460 ft.

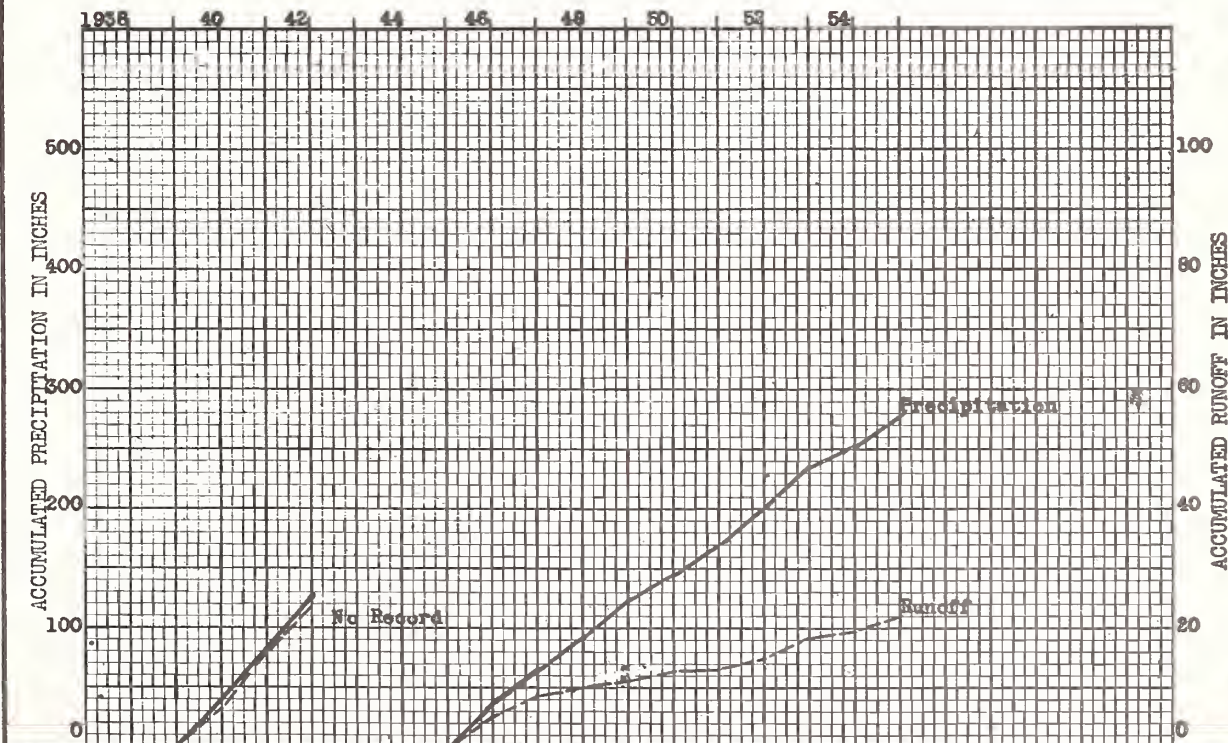
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 6 ft. Parshall flume, with weir for measuring low flows, 6 hr. chart; precipitation - one weighing recording raingauge, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads, 2.4%; permanent grasses, 18.6%; cropland, 79.0%. Cropland farmed with straight rows and approximately 25% in oats and 75% in row crops each year. No legumes grown or special conservation practices used. This is an area of government owned land maintained with only minor land use or cultural changes.

GENERALLY REPRESENTS: Areas in the Blacklands of Coastal Plains in Texas on deep, fine textured, slowly permeable soils with a large portion of the area in cultivation.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Riesel, Texas, Watershed W-6

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q					4.95 .38	2.61 T	0.34 0	2.28 0	0.24 0	1.94 0	2.39 0	1.25 0	16.00 .38
1940 P Q	1.00 0	2.71 0	0.58 0	4.57 .17	1.65 .01	6.68 .28	1.93 .36	1.89 0	1.21 0	5.03 .05	9.98 5.52	3.81 1.04	41.04 7.43
1941 P Q	3.13 1.43	5.47 2.39	3.92 .92	3.80 .22	5.08 1.19	6.87 2.60	3.14 .07	1.18 T	.87 0	3.20 0	2.40 T	2.46 0	41.52 8.82
1942 P Q	.91 0	1.83 T	.97 0	6.48 .87	4.23 .17	7.95 2.85	.83 0	1.27 0	8.32 1.98	2.66 0	3.31 .34	4.36 1.64	43.12 7.85
1943 P Q	.89 T	.16 T	2.00 .07	1.26 .04	5.17 .12	2.29 .36	# #						11.77 .59
1946 P Q	2.93 .14	3.20 .77	3.95 .81	2.77 .04	9.23 3.61	2.14 .02	1.05 0	1.95 0	3.57 T	1.87 0	5.08 T	2.23 .18	39.97 5.57
1947 P Q	3.87 1.12	.52 T	4.50 1.17	2.97 .09	4.34 .57	.65 T	.33 0	1.89 0	1.16 0	.25 0	1.38 0	3.61 0	25.47 2.95
1948 P Q	2.11 0	2.10 0	1.40 0	6.25 1.22	4.73 .28	1.34 0	1.39 0	1.40 0	1.29 0	.63 0	1.04 0	1.44 0	25.12 1.50
1949 P Q	4.11 0	1.63 0	3.10 .28	3.84 .20	1.13 0	4.65 .39	4.51 .84	1.95 0	.26 0	4.57 0	.13 0	3.11 0	32.99 1.71
1950 P Q	2.18 0	3.41 .95	.32 0	3.69 .06	2.60 T	2.58 0	2.07 0	.03 0	2.31 0	.87 0	.92 0	.41 0	21.39 1.01
1951 P Q	1.67 0	2.32 0	1.83 0	2.47 0	3.54 0	4.36 .09	.03 0	.17 0	5.53 0	.96 0	1.17 0	.41 0	24.46 .09
1952 P Q	1.43 0	2.73 0	3.25 0	4.93 .16	4.24 .59	.74 0	.84 0	0 0	.72 0	0 0	6.88 0	4.71 1.10	30.47 1.85
1953 P Q	.54 T	2.39 .13	3.31 1.01	3.19 .21	6.35 2.19	.45 0	.67 0	4.04 0	2.07 0	5.75 .14	.78 0	4.10 .05	33.64 3.73
1954 P Q	1.23 T	.62 0	.35 0	3.28 .21	3.70 1.00	.83 T	1.85 0	.67 0	1.04 0	.90 0	3.20 0	.17 0	17.84 1.21
1955 P Q	2.16 0	4.31 .15	3.63 1.11	2.49 .49	5.33 .43	3.30 .16	1.31 0	1.37 0	1.29 0	.69 0	.72 0	.80 0	27.40 2.34
P Q P Q P Q P Q													
** Av. P ** Av. Q	2.10 .21	2.56 .34	2.39 .41	3.90 .30	4.32 .77	3.27 .49	1.53 .10	1.37 T	2.28 .15	2.11 .01	2.85 .45	2.43 .31	31.11 3.54
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** # Station discontinued June 30, 1943 to January 1946. \*\* Does not include the part year amounts for 1939 and 1943. Normal P based on Waco Weather Bureau record computed on several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of Records: P - good; Q - good, except 1946, 47, 48, poor.



LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 40.4 ac.

SHAPE: Roughly rectangular, about 2000 ft. long by 800 ft. wide.

SLOPES: 15% is in less than 1% class; 65% in 1-3%; 20% in 3-6%. Aspect ENE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 56%; Houston black clay, gravelly phase - 24%; Houston black clay, shallow phase - 20%. Poorly defined division between topsoil and subsoil. All these soils and particularly the Houston black clay are noted for the formation of large extensive cracks upon drying.

EROSION: 2 - 89%; 3 - 11%.

LAND CAPABILITY: I - 12%; II - 74%; III - 14%.

SURFACE DRAINAGE: Good; principal waterway 2100 ft. long. Road ditches carry very little runoff water.

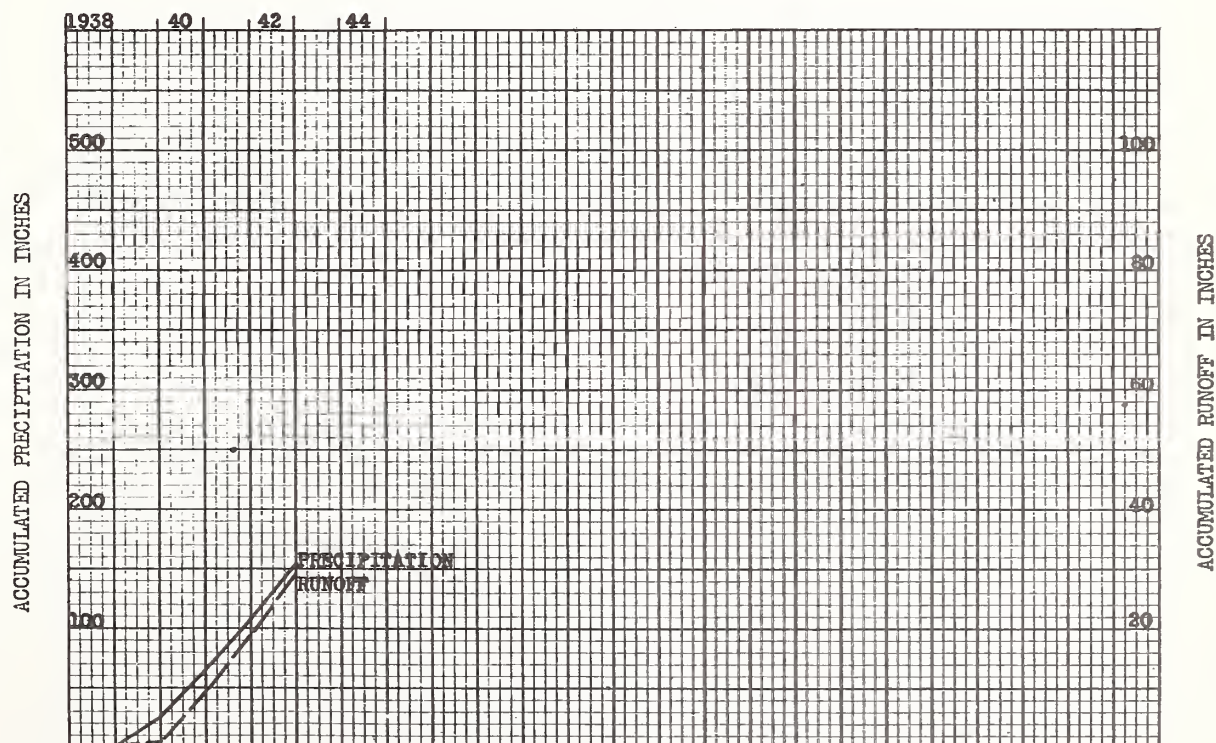
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 6 ft. Parshall flume, with weir for measuring low flows, 6 hr. chart; precipitation - one weighing recording raingauge, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads - 4.7%; permanent grasses - 16.4%; farmstead - .7%; cultivated - 78.2%. Cultivated land with approximately 25% in oats, 25% in corn, and 50% in cotton each year. Straight row cultivation with no special conservation practices. This is an area of government owned land maintained with only minor land uses or cultural changes.

GENERALLY REPRESENTS: Areas in the Blacklands of Coastal Plains in Texas on deep, fine textured, slowly permeable soils with a large portion of the area in cultivation.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station,

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Riesel, Texas, Watershed W-8**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q								0.96 0	0.82 0	0.21 0	0.72 0	2.77 0	5.48 0
1939 P Q	3.79 0	3.02 .03	1.45 T	1.23 0	4.95 .46	2.61 0	0.34 0	2.28 0	.24 0	1.94 0	2.39 0	1.25 0	25.49 .49
1940 P Q	1.00 0	2.71 .02	.58 0	4.57 .29	1.65 .02	6.68 .46	1.93 .46	1.89 0	1.21 0	5.03 .39	9.98 5.70	3.81 1.23	41.04 8.57
1941 P Q	3.13 2.24	5.47 2.61	3.92 1.37	3.80 .65	5.08 .79	6.87 1.93	3.14 .09	1.18 0	.87 0	3.20 0	2.40 .01	2.46 .04	41.52 9.73
1942 P Q	.91 0	1.83 .04	.97 .01	6.48 1.53	4.23 .63	7.95 3.39	.83 0	1.27 0	8.32 1.97	2.66 .01	3.31 .80	4.36 1.54	43.12 9.92
1943 P Q	.89 .03	.16 0	2.00 .18	1.26 .09	5.17 .22	2.29 .41	# #						11.77 .93
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** Av. P * * Av. Q	2.21 .56	3.26 .68	1.73 .34	4.02 .62	3.98 .48	6.03 1.44	1.56 .14	1.66 0	2.66 .49	3.21 .10	4.52 1.63	2.97 .70	37.81 7.18
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** \*\* Does not include part year amounts for 1938 and 1943. # Station discontinued July 25, 1943. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of records: P -good; Q - fair.



LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 19.7 ac.

SHAPE: Broad fan, about 1250 ft. wide by 1040 ft. long.

SLOPES: 27% is in less than 1% class; 72% in 1-3%; 1% in 3-6%. Aspect ENE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 61%; Houston black clay, gravelly phase - 39%; poorly defined division between topsoil and subsoil. These soils are noted for the formation of large, extensive cracks upon drying.

EROSION: 2 - 91%; 3 - 9%.

LAND CAPABILITY: I - 23%; II - 76%; III - 1%.

SURFACE DRAINAGE: Good; one poorly defined waterway 1060 ft. long. Remainder of flow in rills and small gullies.

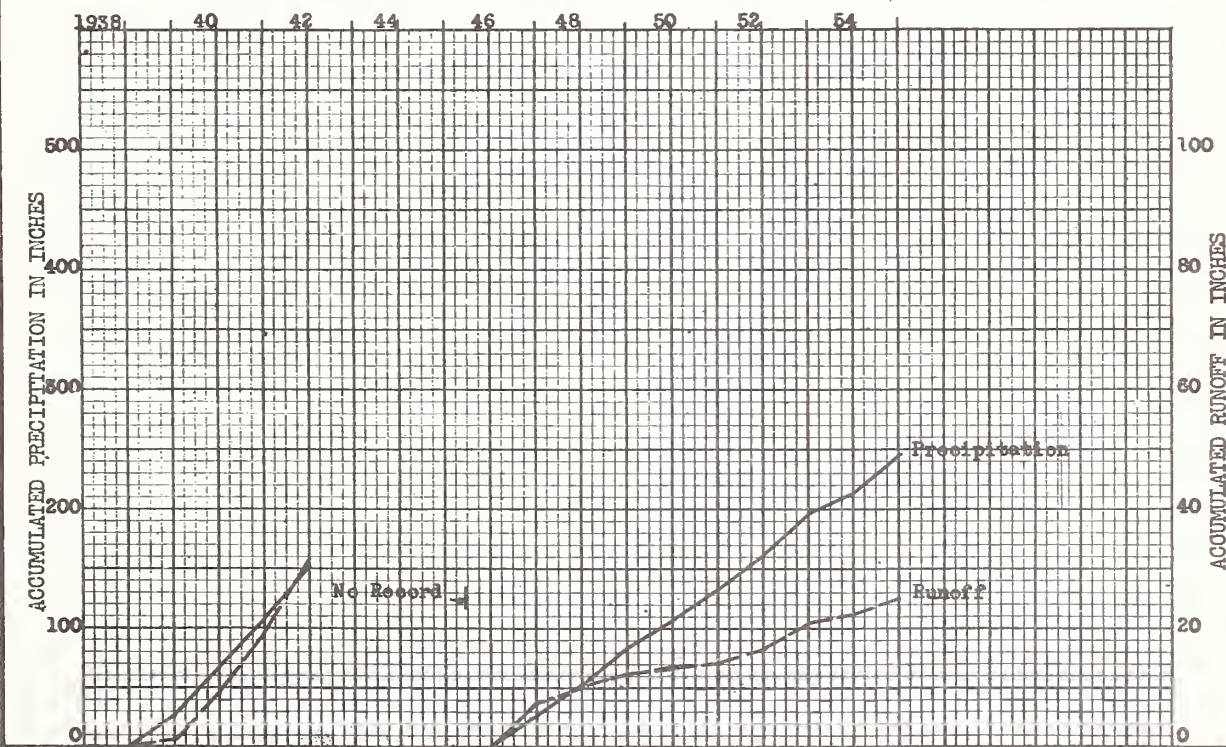
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 6 ft. Parshall flume, with weir for measuring low flows, 6 hr. chart; precipitation - one weighing recording raingage, 6 hr. chart.

WATERSHED CONDITIONS: Entire watershed cultivated, straight rows with no special conservation practices. Approximately 50% of the area in cotton, 25 % in corn, and 25% in oats each year. This is an area of government owned land maintained with only minor land use or cultural changes.

GENERALLY REPRESENTS: Small cultivated areas in the Blacklands of Coastal Plains in Texas on deep, fine textured, slowly permeable soils.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Riesel, Texas, Watershed W-10

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q								0.85 T	0.87 0	0.25 0	0.66 0	2.75 0	5.38 T.
1939 P Q	3.98 .01	3.07 T	1.29 T	1.29 0	4.85 .37	2.53 0	0.32 0	2.54 T.	.17 0	1.93 0	2.47 0	1.2 0	25.65 .3
1940 P Q	.97 0	2.75 T	.59 0	4.57 .19	1.81 .03	6.51 .47	1.88 .32	1.66 T	1.25 0	4.62 .35	10.32 *5.91	3.96 .82	40.89 *8.09
1941 P Q	3.10 1.77	5.30 3.28	3.80 1.09	3.92 .53	4.91 1.37	6.35 2.78	2.79 .03	1.15 0	.78 0	3.36 0	2.45 T	2.45 T	40.36 10.85
1942 P Q	.68 0	1.68 T	.91 0	6.29 1.64	4.13 .75	7.55 3.82	.81 0	1.30 0	7.87 2.58	2.67 .01	3.44 .99	4.22 1.64	41.55 11.43
1943 P Q	.91 .02	.14 0	2.09 .15	1.17 .10	4.69 .39	2.12 .54	# #						11.12 1.20
1946 P Q						1.87 .05	1.35 0	1.88 0	3.45 0	1.89 0	5.41 .90	2.26 .74	18.11 1.69
1947 P Q	3.72 2.82	.52 T	4.33 2.04	2.88 .33	4.51 1.73	.69 T	.21 0	1.92 0	1.06 0	.31 0	1.42 0	3.64 0	25.21 6.92
1948 P Q	1.97 0	2.00 0	1.50 T	6.19 2.27	4.81 .86	1.48 .01	1.19 .02	1.58 0	1.36 0	.77 0	.98 0	1.49 0	25.62 3.16
1949 P Q	4.13 0.	1.72 T	2.98 .36	3.82 .17	1.01 0	4.50 .53	4.53 1.00	1.77 0	.17 0	4.72 .02	.13 0	3.13 0	32.61 2.08
1950 P Q	2.08 0	3.66 .91	.32 0	3.73 .27	2.72 T	2.56 .01	1.97 0	.14 0	2.65 0	.89 0	.92 0	.51 0	22.15 1.19
1951 P Q	1.75 0	2.36 .02	1.95 T	2.35 .05	3.97 .27	4.18 .29	.03 0	.13 0	5.52 .03	.95 0	1.19 0	.40 0	24.78 .66
1952 P Q	1.35 0	2.92 0	3.17 .01	4.76 .24	4.20 .52	.61 0	.87 0	0 0	.70 0	0 0	6.96 .05	4.64 1.40	30.18 2.22
1953 P Q	.60 T.	2.25 .05	3.30 .64	3.29 .41	6.58 3.09	.44 0	.58 0	4.03 0	2.37 0	5.43 .31	.81 0	4.32 .08	34.00 4.58
1954 P Q	1.30 0	.60 0	.35 0	3.21 .14	4.12 1.26	.70 T	2.31 0	.82 0	1.03 0	1.04 0	3.13 .02	.15 0	18.76 1.42
1955 P Q	2.23 0	4.60 .39	3.29 .87	2.69 .70	5.76 .74	2.98 .08	1.27 0	1.45 0	1.42 0	.65 0	.77 0	.78 0	27.89 2.78
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	2.14 .35	2.57 .36	2.14 .39	3.79 .53	4.11 .85	3.16 .61	1.44 .11	1.42 T	2.03 .20	2.10 .05	2.69 .54	2.38 .30	29.97 4.29
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

Notes: \*Partially estimated. #Station discontinued June 30, 1943, to June 1, 1946. \*\*Does not include part year amounts for 1938, 1943, and 1946. Normal P based on Waco Weather Bureau record computed on several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of Record: P - Good; Q - Fair 1938-43, Good 1946-55.

LOCATION: Falls Co., Texas; 17 mi. S. E. Waco; Brazos River Basin.

AREA: 309 ac.

SHAPE: Fan, about 5000 ft. wide by 3300 ft. long, two major tributaries.

SLOPES: 3% is in less than 1% class; 79% in 1-3%; 18% in 3-6%. Aspect ENE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 66%; Houston black clay, shallow phase - 15%; Houston black clay, shallow phase over chalk - 18%; Austin clay, shallow phase - 1%; Trinity clay, trace; poorly defined division between topsoil and subsoil. These soils and particularly the Houston black clay are

EROSION: 2 - 77%; 3 - 22%; 4 - 1%; 5, 6 (noted for the formation of large, extensive cracks upon drying.

LAND CAPABILITY: I - 5%; II - 74%; III - 18%; V - 2%; VI - 1%.

SURFACE DRAINAGE: Good; two principal waterways 5040 ft. and 4000 ft. long.

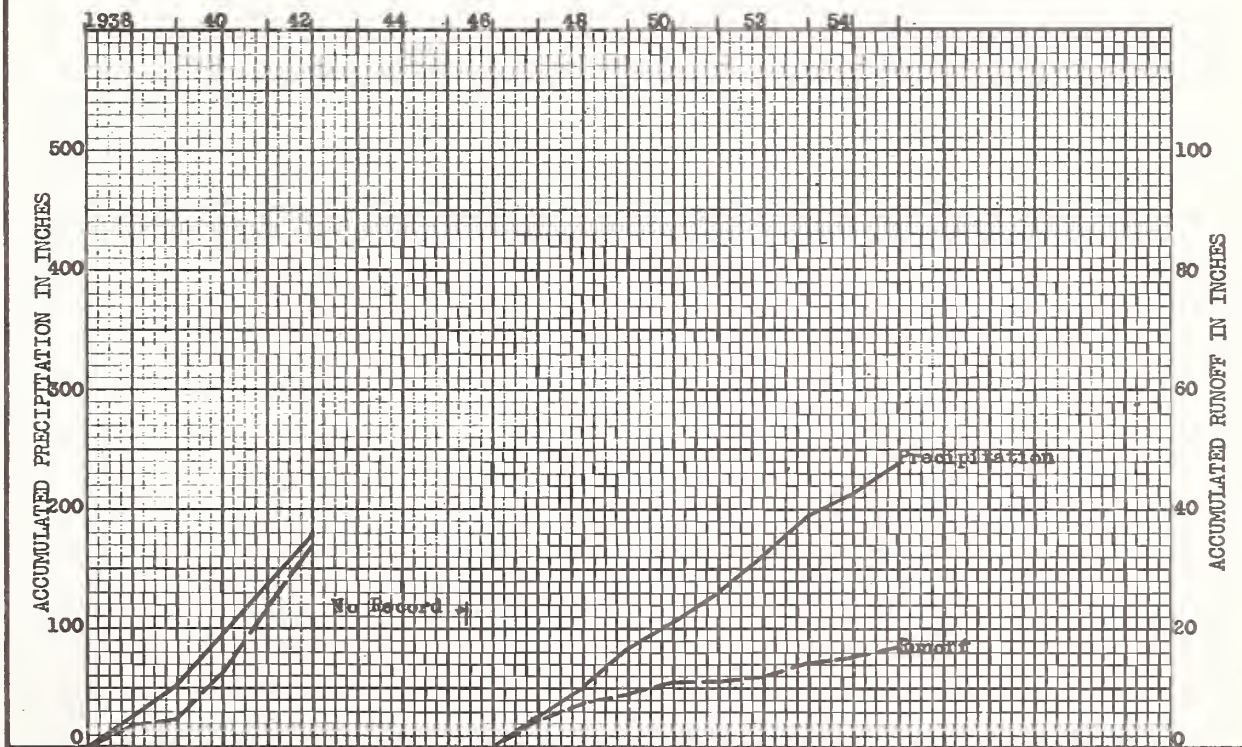
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - current meter station with artificial low water control, 6 hr. chart; precipitation - five weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads - 1.6% in 1938-55; farmsteads - 0.9% in 1938-42, 0.6% in 1943-51, and 0.2% in 1952-55; permanent grass - 19.5% in 1938-42, 30.5% in 1943-51, and 38.7% in 1952-55; remainder of area cultivated. During 1938-42 the cultivated land was farmed in straight rows with no special conservation practices and with approximately 25% in oats, and 75% in cotton and corn each year. A terrace system was then constructed on the reduced acreage of cultivated land prior to the 1943 crop. During 1943-55 approximately 1/3 of the cultivated land was in oats and clover and 2/3 in row crop each year. The government owns and since 1943 has operated 83% of this area to maintain good conservation practices, the remaining 17% is privately owned and operated with poor to fair conservation practices.

GENERALLY REPRESENTS: 1938-42, areas in the Blacklands of Coastal Plains in Texas on deep, fine textured, slowly permeable soils with a large portion of the area in cultivation; 1943-55 same area but with good soil conservation practices.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Riesel, Texas, Watershed-Y**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P Q					1.25 T	4.12 .56	1.12 0	0.91 0	2.83 T	2.98 T	3.20 .02	3.77 .45	20.18 1.03
1938 P Q	4.26 1.76	2.71 1.00	2.64 .18	3.74 .74	2.44 .02	3.15 .02	1.90 0	.76 0	.92 0	.08 0	.75 0	2.71 0	26.06 3.72
1939 P Q	3.84 .01	2.86 .05	1.27 T	.87 0	4.85 .54	2.62 0	.32 0	2.31 0	.52 0	1.83 0	2.18 0	1.09 0	24.56 .60
1940 P Q	.97 0	2.66 T	.57 0	4.30 .17	2.02 .02	6.54 .59	1.74 .28	2.82 0	1.17 0	4.34 .13	10.07 5.14	3.73 1.35	40.93 7.68
1941 P Q	2.95 1.76	5.53 3.00	3.65 1.25	4.04 .65	5.15 1.55	6.85 2.64	3.47 .43	1.38 0	.93 0	3.44 0	2.44 0	2.44 T	42.27 11.28
1942 P Q	.74 T	1.86 .02	1.08 T	6.34 1.27	4.37 .78	7.65 3.29	.67 T	.84 0	8.57 2.29	2.42 T	3.44 .84	3.84 1.40	41.82 9.89
1943 P Q	.96 .11	.16 .01	2.03 .17	1.36 .08	5.03 .21	2.35 .32	# #						11.89 .90
1946 P Q					9.37 4.52	2.26 .23	1.22 T	1.76 T	4.21 T	1.59 T	4.92 .27	2.40 .51	27.73 5.53
1947 P Q	3.72 2.10	.56 .05	4.36 1.94	2.86 .24	4.31 1.06	.49 T	.76 0	1.56 0	1.24 0	.27 0	1.37 0	3.54 0	25.04 5.39
1948 P Q	2.02 0	1.97 0	1.16 0	5.70 1.12	5.32 .72	1.19 T	1.22 0	.96 0	1.55 0	.66 0	1.11 0	1.56 0	24.42 1.84
1949 P Q	4.12 T	1.57 T	2.85 .09	4.10 .23	1.05 T	4.86 .08	4.99 .91	1.73 0	.16 0	4.48 0	.18 0	3.03 0	33.12 1.31
1950 P Q	2.16 T	3.51 1.46	.28 T	3.76 .14	3.01 .02	2.44 .02	1.76 0	.05 0	2.42 0	.84 0	1.06 0	.41 0	21.70 1.64
1951 P Q	1.66 0	2.29 0	1.78 0	2.58 0	3.21 0	4.22 .02	.11 0	.11 0	5.55 T	1.20 0	1.02 0	.55 0	24.28 .02
1952 P Q	1.82 T	2.79 0	3.24 .01	5.00 .15	4.62 .39	1.19 0	.55 0	T 0	.63 0	0 0	6.86 T	4.62 .69	31.32 1.24
1953 P Q	.54 T	2.02 T	3.76 .84	3.14 .06	6.16 1.77	.47 0	.32 0	3.38 0	1.90 0	5.63 0	.90 0	4.26 .04	32.48 2.71
1954 P Q	1.23 .02	.73 .01	.42 T	3.38 .03	3.89 .60	1.19 .01	1.85 0	.59 0	1.19 0	.85 0	3.01 0	.17 0	18.50 .67
1955 P Q	2.22 0	4.24 .02	4.15 1.02	2.59 .21	5.78 .26	3.70 .14	1.09 0	1.07 0	.88 0	.98 0	.79 0	.84 0	28.33 1.65
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	2.30 .40	2.52 .40	2.23 .38	3.74 .36	4.01 .55	3.33 .49	1.48 .12	1.25 0	1.97 .16	1.93 .01	2.51 .43	2.34 .25	29.61 3.55
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** #Station discontinued June 30, 1943, to May1, 1946. \*\*Does not include the part year amounts for 1937, 1943, and 1946. Normal P based on Waco Weather Bureau record computed on several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of Records: E - good; Q - good, except 1947-48, fair.



LOCATION: Falls Co., Texas; 18 mi. S. E. Waco; Brazos River Basin.

AREA: 132 ac.

SHAPE: Fan, about 2900 ft. wide by 3000 ft. long, two major tributaries.

SLOPES: 6% is in less than 1% class; 67% in 1-3%; 27% in 3-6%. Aspect E.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 75%; Houston black clay, shallow phase over chalk - 22%; Austin clay, shallow phase - 2%; Trinity clay - 1%. Poorly defined division between topsoil and subsoil. These soils and particularly the Houston black clay are noted for the formation of large, extensive cracks upon drying.

LAND CAPABILITY: I - 2%; II - 65%; III - 32%; V - 1%; VI - 1.

SURFACE DRAINAGE: Good; two principal waterways, 3280 ft. and 2100 ft. long.

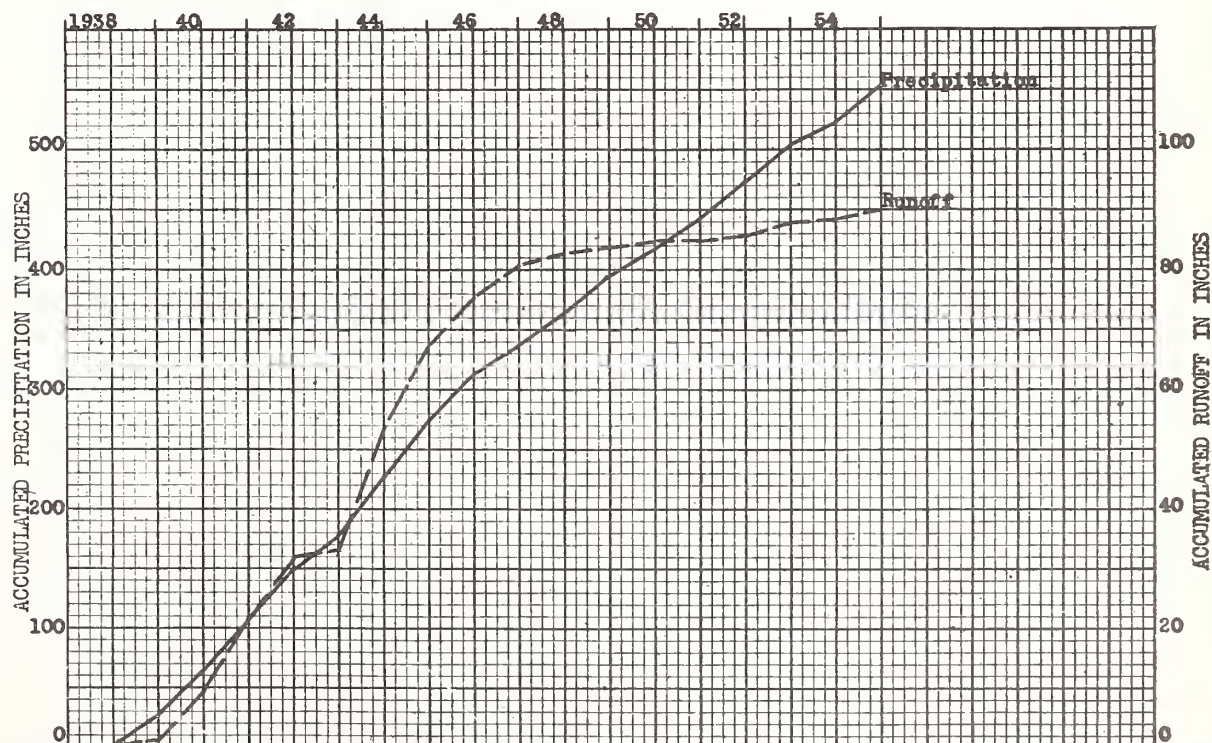
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 15 ft. Parshall flume, with weir for measuring low flows, 6 hr. chart; precipitation - four weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads - 1.2% in 1938-55; permanent grass - 8.8% in 1938-42, 21.5% in 1943-45, 27.6% in 1946-49, and 30.8% in 1950-55; remainder of area cultivated. During 1938-42 the cultivated land was farmed in straight rows with no special conservation practices and with approximately 25% in oats and 75% in row crops each year. A terrace system was then constructed on the reduced acreage of cultivated land prior to the 1943 crop. During 1943-55 approximately 1/3 of the cultivated land was in oats and clover and 2/3 in row crops each year; all tillage operations were parallel to the terraces. The government owns this area and since 1943 has conducted farm operations to maintain good conservation practices.

GENERALLY REPRESENTS: 1938-42, areas in the Blacklands of Coastal Plains in Texas on deep, fine textured, slowly permeable soils with a large portion of the area in cultivation; 1943-55 same area but with good soil conservation practices.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Riesel, Texas, Watershed Y-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	3.91 .03	2.93 .04	1.29 T	0.91 0	4.69 .80	2.69 0	0.33 0	2.27 T	0.53 0	1.82 0	2.24 0	1.00 0	24.61 .87
1940 P Q	.94 0	2.62 0	.56 0	4.33 .32	1.99 .04	6.49 .88	1.75 .44	2.93 0	1.13 0	4.28 .21	9.96 5.52	3.74 1.53	40.72 8.94
1941 P Q	2.90 1.63	5.46 3.01	3.61 1.23	4.10 .79	5.02 1.63	6.75 2.97	3.55 .54	1.39 T	.92 0	3.41 0	2.36 0	2.46 T	41.93 11.80
1942 P Q	.70 0	1.83 0	1.10 0	6.42 1.50	4.37 .75	7.74 3.37	.64 T	.92 0	8.50 2.34	2.36 T	3.39 .80	3.76 1.21	41.73 9.97
1943 P Q	.97 .12	.15 0	2.05 .14	1.40 .08	5.10 .21	2.40 .31	3.41 0	.29 0	1.89 0	2.94 0	1.93 0	3.14 0	25.67 .86
1944 P Q	4.80 .63	5.99 3.59	3.81 2.18	6.90 3.77	12.61 8.65	1.49 .22	1.80 0	1.40 0	1.45 0	.15 0	6.83 .66	4.46 1.60	51.69 21.30
1945 P Q	2.35 1.47	2.92 .96	7.42 4.29	5.90 3.35	3.23 .36	4.22 .06	1.84 T	4.46 0	3.50 T	3.03 .38	.96 0	4.83 2.77	44.66 13.64
1946 P Q	2.85 .39	2.98 1.16	4.22 1.27	2.83 .09	9.31 4.14	2.29 .24	1.23 0	1.75 T	4.36 T	1.59 T	4.89 .32	2.41 .46	40.71 8.07
1947 P Q	3.74 2.01	.56 .01	4.35 1.82	2.85 .17	4.28 .96	.43 T	.74 0	1.51 0	1.35 0	.24 0	1.37 0	3.58 0	25.00 4.97
1948 P Q	2.04 0	1.96 0	1.11 0	5.65 1.18	5.32 .67	1.24 0	1.25 0	.85 0	1.65 0	.64 0	1.11 0	1.54 0	24.36 1.85
1949 P Q	4.12 0	1.59 0	2.79 .05	4.11 .21	1.10 0	4.87 .03	5.10 .78	1.67 0	.17 0	4.46 0	.19 0	3.00 0	33.17 1.07
1950 P Q	2.12 T	3.53 .86	.26 0	3.73 .06	3.02 0	2.48 0	1.77 0	.05 0	2.51 0	.84 0	1.08 0	.43 0	21.82 .92
1951 P Q	1.54 0	2.31 0	1.77 0	2.60 0	3.17 0	4.25 T	.13 0	.10 0	5.59 T	1.22 0	1.00 0	.54 0	24.22 T
1952 P Q	1.87 0	2.77 0	3.25 .01	5.06 .11	4.72 .33	1.17 0	.58 0	T 0	.63 0	0 0	6.87 0	4.67 .68	31.59 1.13
1953 P Q	.54 T	1.95 T	3.74 .84	3.12 .03	6.09 1.55	.48 0	.32 0	3.43 0	1.88 0	5.59 T	.91 0	4.23 T	32.28 2.42
1954 P Q	1.23 0	.73 0	.41 0	3.46 0	3.85 .52	1.25 T	1.73 0	.51 0	1.20 0	.82 0	2.95 0	.17 0	18.31 .52
1955 P Q	2.24 0	4.27 0	4.12 .87	2.60 .18	5.75 .22	3.75 .12	1.08 0	1.08 0	.93 0	1.04 0	.81 0	.84 0	28.51 1.39
P Q													
P Q													
P Q													
Av. P Av. Q	2.29 .37	2.62 .57	2.70 .75	3.88 .70	4.92 1.23	3.18 .48	1.60 .10	1.45 T	2.25 .14	2.03 .03	2.87 .43	2.64 .49	32.43 5.29
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** Normal P based on Waco Weather Bureau record computed on several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of Records: P - good; Q - excellent, except for May 1944, fair.



LOCATION: Falls Co., Texas; 18 mi. S. E. of Waco; Brazos River Basin.

AREA: 79.9 ac.

SHAPE: Fan, about 2500 ft. wide by 2200 ft. long.

SLOPES: 3% is in less than 1% class; 61% in 1-5%; 36% in 5-6%. Aspect E.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 74%; Houston black clay, shallow phase over chalk - 24%; Austin clay, shallow phase - 2%. These soils except the shallow Austin clay are noted for the formation of large, extensive cracks upon drying.

EROSION: 2 - 66%; 3 - 32%; 4 - 2%.

LAND CAPABILITY: II - 63%; III - 18%; V - 11%; VI - 8%.

SURFACE DRAINAGE: Good; length of principal waterway 2000 ft.

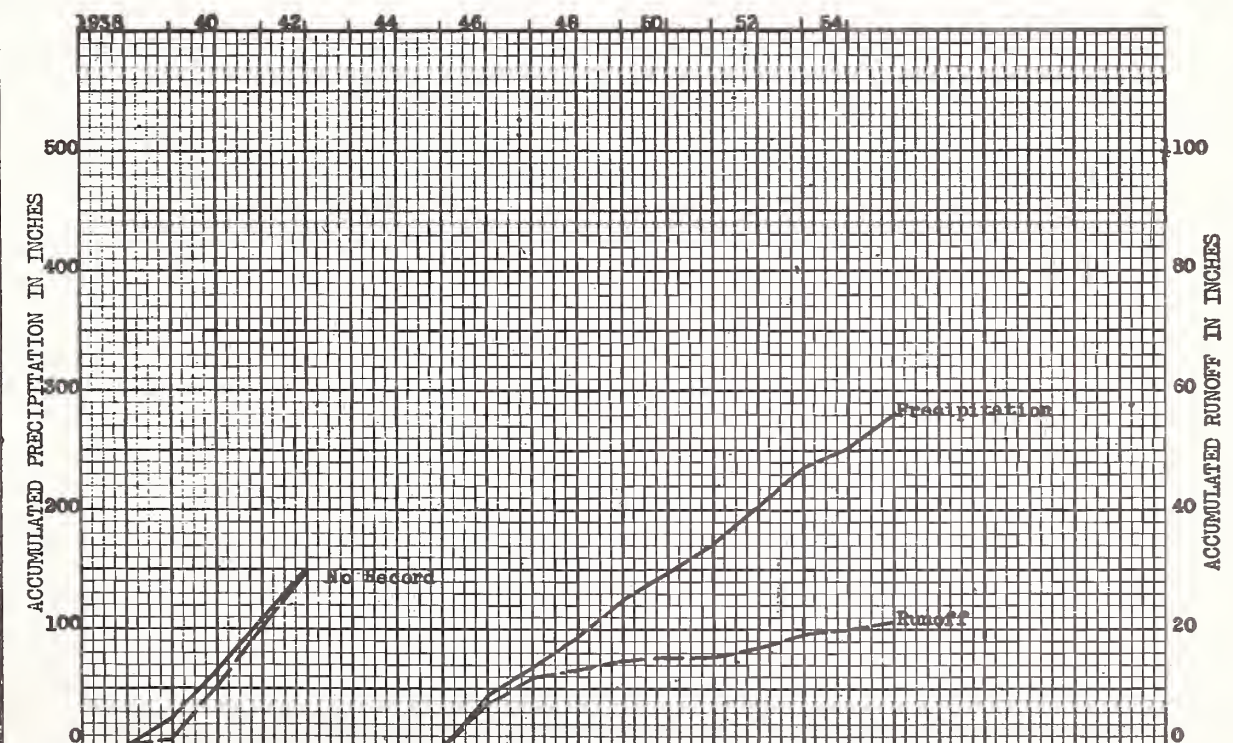
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 10 ft. Parshall flume, with weir for measuring low flows, 6 hr. chart; precipitation - three weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads - 1.0%, 1938-55; permanent grasses - 11.8% in 1938-42, 20.8% in 1943, 25.2% in 1944-46, 28.2% in 1947-49, 31.6% in 1950-55; remainder of area cultivated. During 1938-42 the cultivated land was farmed with straight rows and no special conservation practices and with approximately 25% in oats and 75% in row crops each year. A terrace system was then constructed on the reduced acreage of cultivated land prior to the 1943 crop. During 1943-55 approximately 1/3 of the cultivated land was in oats and 2/3 in row crops each year; and all tillage operations were parallel to the terraces. The government owns this area and since 1943 has conducted farm operations to maintain good conservation practices.

GENERALLY REPRESENTS: 1938-42, areas in the Blacklands of Coastal Plains in Texas on deep, fine textured, slowly permeable soils with a large portion of the area in cultivation; 1943-55 same area but with good soil conservation practices.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Reisel, Texas, Watershed Y-4

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	3.89 .01	2.92 .06	1.26 T	0.88 0	4.63 .73	2.67 0	0.32 0	2.23 0	0.58 0	1.79 0	2.23 0	0.99 0	24.39 .80
1940 P Q	.93 0	2.58 0	.55 0	4.35 .28	1.96 .06	6.48 .96	1.75 .50	2.96 0	1.12 0	4.21 .14	10.03 5.22	3.76 1.27	40.68 8.43
1941 P Q	2.88 1.62	5.45 2.83	3.61 1.00	4.16 .58	4.98 1.47	6.72 2.69	3.56 .47	1.39 0	.89 T	3.40 0	2.29 T	2.46 T	41.79 10.66
1942 P Q	.69 0	1.80 .01	1.12 0	6.49 1.51	4.35 .69	7.86 3.20	.65 0	1.00 0	8.41 2.32	2.32 0	3.32 .69	3.69 .97	41.70 9.39
1943 P Q	.98 .05	.15 T	2.09 .11	1.43 .05	5.09 .21	2.45 .31	# #						12.19 .73
1946 P Q	2.86 .42	3.00 1.08	4.20 1.16	2.84 .12	9.25 3.55	2.30 .28	1.23 0	1.75 T	4.45 T	1.59 T	4.88 .32	2.41 .39	40.76 7.32
1947 P Q	3.77 1.60	.57 T	4.34 1.49	2.83 .14	4.27 .80	.39 0	.74 0	1.48 0	1.39 0	.23 0	1.38 0	3.61 0	25.00 4.03
1948 P Q	2.05 0	1.96 0	1.08 0	5.62 .91	5.36 .61	1.29 0	1.25 0	.79 0	1.70 0	.64 0	1.11 0	1.51 0	24.36 1.52
1949 P Q	4.14 0	1.61 0	2.72 .04	4.13 .25	1.12 0	4.88 .08	5.13 .88	1.64 0	.19 0	4.47 0	.20 0	3.00 0	33.23 1.25
1950 P Q	2.08 0	3.57 .93	.27 0	3.71 .10	3.02 0	2.48 0	1.77 0	.06 0	2.57 0	.86 0	1.09 0	.43 0	21.91 1.03
1951 P Q	1.50 0	2.33 0	1.76 0	2.60 0	3.16 0	4.29 T	.13 0	.10 0	5.61 T	1.24 0	1.01 0	.53 0	24.26 T
1952 P Q	1.86 T	2.77 0	3.25 .02	5.13 .20	4.84 .38	1.16 0	.60 0	T 0	.63 0	0 0	6.94 0	4.70 .68	31.88 1.28
1953 P Q	.55 0	1.91 T	3.72 .89	3.12 .05	6.06 1.78	.49 0	.33 0	3.50 0	1.86 0	5.61 0	.92 0	4.25 .01	32.32 2.73
1954 P Q	1.24 0	.73 0	.41 0	3.48 .01	3.85 .71	1.29 T	1.66 0	.48 0	1.20 0	.82 0	2.93 0	.17 0	18.26 .72
1955 P Q	2.26 0	4.26 T	4.08 .85	2.58 .20	5.71 .26	3.76 .16	1.07 0	1.10 0	.99 0	1.07 0	.82 0	.83 0	28.53 1.47
P Q													
P Q													
P Q													
P Q													
P Q													
*Av. P *Av. Q	2.19 .26	2.53 .35	2.31 .39	3.71 .31	4.47 .79	3.29 .53	1.44 .13	1.32 T	2.26 .17	2.02 .01	2.80 .44	2.31 .24	30.65 3.62
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** #Station discontinued June 30, 1943 to Jan., 1946.      \*\*Does not include the part year amounts for 1943.

Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of Records    P = good ; Q=excellent.

LOCATION: Falls Co., Texas; 18 mi. S. E. of Waco; Brazos River Basin.

AREA: 20.9 ac.

SHAPE: Long fan, about 980 ft. wide by 1440 ft. long.

SLOPES: 10% is in less than 1% class; 35% in 1-5%; 55% in 5-6%. Aspect NE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 35%; Houston black clay, shallow phase over chalk - 58%; Austin clay, shallow phase - 7%.

EROSION: 2 - 41%; 3 - 52%; 4 - 7%.

LAND CAPABILITY: I - 7%; II - 43%; III - 50%.

SURFACE DRAINAGE: Good; drainage 1938-42 through several field gullies; principal waterway 1440 ft. long; 1943-55 drainage by one terrace and sodded waterway 1100 ft. long.

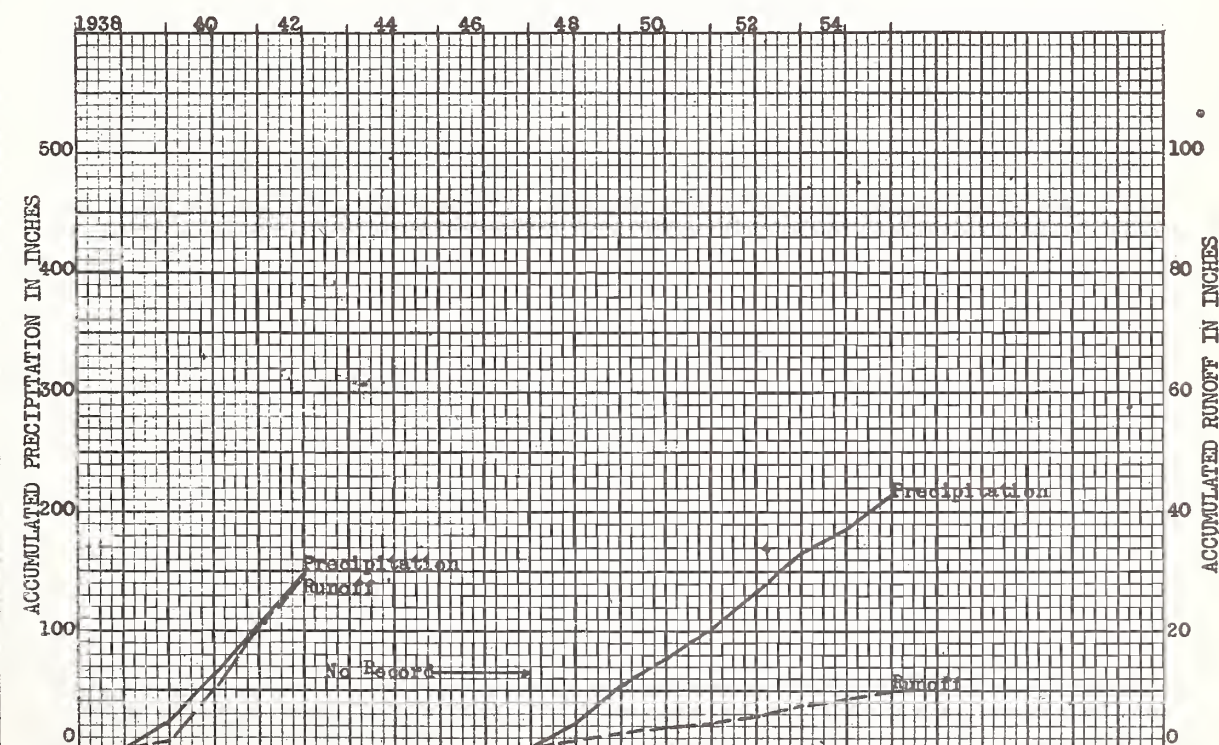
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 6 ft. Parshall flume with weir for measuring low flows, 6 hr. chart; precipitation - two weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads - 1.4% in 1938-55; permanent grasses - none in 1938-42, 9.0% in 1943-46, 14.9% in 1947-49, 26.9% in 1950-55; remainder of area cultivated. During the period 1933-42 crops were farmed with straight rows and no special attention to conservation practices and with about 1/4 of the area in oats and 3/4 in row crops each year. A terrace system was then constructed on the reduced acreage of cultivated land prior to the 1943 crop; and tillage operations since then have been parallel to the terraces. The cultivated area was in approximately 1/3 oats and clover and 2/3 row crops, 1943-52; and 1/2 oats and clover and 1/2 row crops, 1953-55. The government owns and since 1943 has conducted farm operations on this area to maintain good conservation practices.

GENERALLY REPRESENTS: Areas in the Blacklands of Coastal Plains in Texas with moderately severe erosion problems, 1938-42; a terraced area with gradually improved management, 1943 to 1955.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Riesel, Texas, Watershed Y-6**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P	3.96	2.95	1.40	0.97	4.70	2.71	0.35	2.28	0.38	1.86	2.25	1.02	24.83
Q	.36	.11	.01	0	.85	0	0	0	0	0	0	0	1.33
1940 P	.92	2.73	.60	4.36	2.06	6.59	1.79	2.92	1.17	4.49	9.74	3.76	41.13
Q	T	0	0	.23	.09	*.88	*.48	.02	0	.75	5.28	1.41	*9.12
1941 P	2.93	5.41	3.66	3.99	5.00	6.63	3.63	1.44	.99	3.43	2.44	2.46	42.01
Q	1.50	2.83	1.10	.72	1.49	2.52	.53	0	0	0	.01	.01	10.71
1942 P	.75	1.92	1.10	6.27	4.46	7.53	.59	.84	8.64	2.41	3.57	3.93	42.01
Q	0	.02	0	1.41	.71	2.89	0	0	2.21	.01	.76	.83	8.84
1943 P	.93	.16	1.96	1.32	5.19	2.26	#						11.82
Q	.02	0	.04	.04	.16	.31	#						.57
1947 P					4.25	.45	.68	1.59	1.33	.25	1.37	3.56	13.48
Q					.63	0	0	0	0	0	0	0	.63
1948 P	2.00	1.97	1.15	5.75	5.17	1.18	1.28	.99	1.60	.65	1.09	1.61	24.44
Q	0	0	0	1.02	.61	0	0	0	0	0	0	0	1.63
1949 P	4.12	1.52	2.96	4.22	1.09	4.84	5.06	1.71	.17	4.49	.17	3.02	33.37
Q	0	0	.05	.34	0	.16	.89	0	0	0	0	0	1.44
1950 P	2.20	3.54	.26	3.79	3.07	2.53	1.77	.04	2.39	.78	1.06	.47	21.90
Q	0	.78	0	.14	0	0	0	0	0	0	0	0	.92
1951 P	1.58	2.25	1.77	2.60	3.22	4.19	.14	.09	5.49	1.15	.99	.58	24.05
Q	0	0	0	0	0	.03	0	0	.09	0	0	0	.12
1952 P	1.96	2.75	3.29	4.96	4.50	1.13	.56	T	.62	0	6.76	4.66	31.19
Q	0	0	.03	.44	.48	0	0	0	0	0	0	.57	1.52
1953 P	.53	2.05	3.72	3.09	6.17	.45	.30	3.37	1.97	5.48	.89	4.11	32.13
Q	0	0	.70	.12	1.35	0	0	0	0	0	0	T	2.17
1954 P	1.18	.72	.41	3.44	3.89	1.16	1.80	.54	1.17	.81	3.03	.18	18.33
Q	0	0	0	.09	.50	.01	0	0	0	0	0	0	.60
1955 P	2.23	4.36	4.13	2.69	5.72	3.73	1.09	1.06	.80	.96	.76	.85	28.38
Q	0	T	.71	.13	.30	.16	0	0	0	0	0	0	1.30
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
** Av. P	2.03	2.68	2.04	3.84	4.09	3.56	1.53	1.27	2.12	2.21	2.73	2.22	30.32
** Av. Q	.16	.31	.22	.39	.53	.55	.18	T	.19	.06	.50	.24	3.31
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** \*Partially estimated. #Station discontinued June 30, 1943 to May 1, 1947. \*\*Does not include the part year amounts for 1943 and 1947. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of records: P - good; Q - good 1939-43, excellent 1947-55.



LOCATION: Falls Co., Texas; 18 mi. S. E. of Waco; Brazos River Basin.

AREA: 40.0 ac.

SHAPE: Irregular fan, approximately 2/3 of area to left of center, about 1250 ft. wide and 1780 ft. long.

SLOPES: 9% is in less than 1% class; 91% in 1-3%. Aspect N.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 84%; Houston black clay, shallow phase - 16%; poorly defined division between topsoil and subsoil. These soils and particularly the Houston black clay are noted for the formation of large, extensive cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: I - 12%; II - 88%.

SURFACE DRAINAGE: Good, but with no well defined watercourse 1938-42; length of principal waterway 1780 ft. Terraced 1943 with one waterway 800 ft. long.

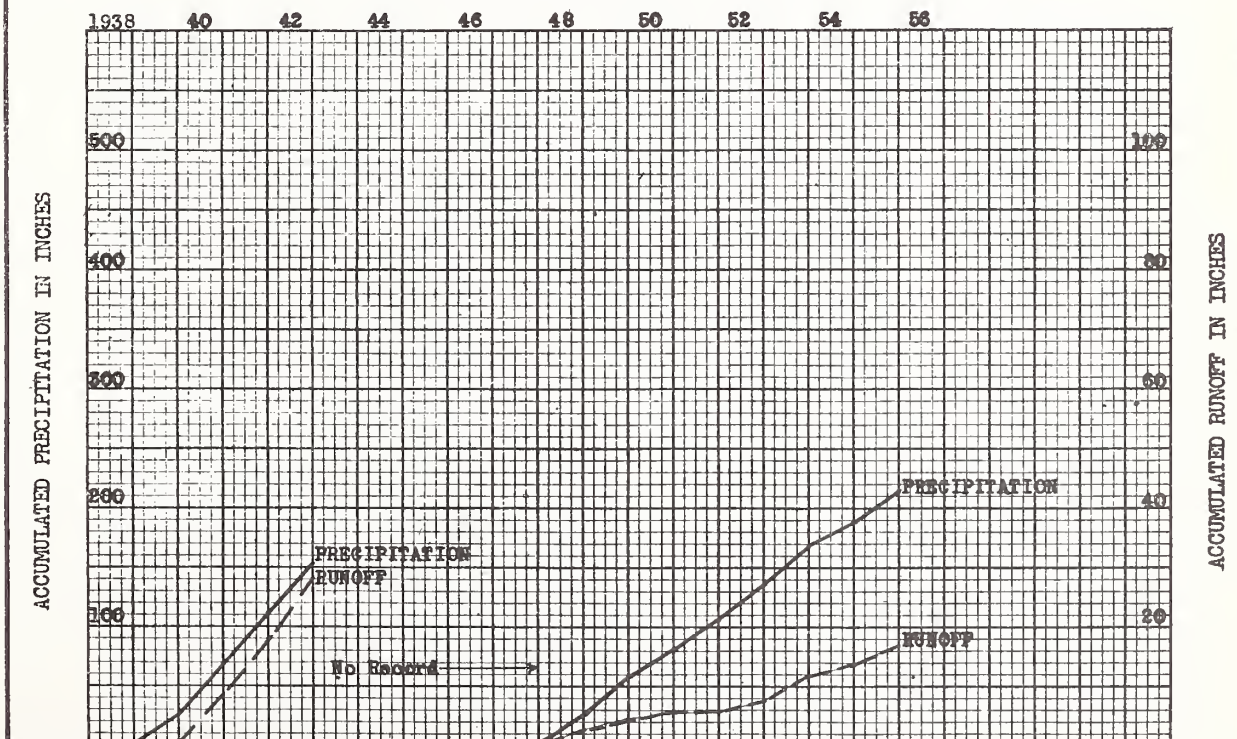
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 6 ft. Parshall flume with weir for measuring low flows, 6 hr. chart; precipitation - one weighing recording raingage, 6 hr. chart.

WATERSHED CONDITIONS: 1938-42, 100% cultivated to row crops with straight rows. 1943-55, 6.5% permanent grass (poor); 93.5% cultivated and terraced with tillage parallel to terraces. No change in crop rotations on cultivated land, no winter cover crops or legumes. Approximately 90% of the cultivated land to rowcrops, and 10% to spring planted broadcast crops each year. Privately owned and operated.

GENERALLY REPRESENTS: Cultivated areas in the Blacklands of Coastal Plains in Texas with relatively small erosion damage, but with little or no consideration of soil improving practices or crops. Straight row cultivation 1938-42, terraced and approximate contour cultivation 1943-55.

ACCUMULATED PRECIPITATION AND RUNOFF



Riesel, Texas Watershed Y-7

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	4.08 .01	3.03 .01	1.38 T	1.04 O	4.90 .66	2.76 O	0.34 O	2.48 O	0.35 O	1.84 O	2.41 O	1.15 O	25.76 .68
1940 P Q	1.00 O	2.80 O	.57 O	4.50 .27	2.05 .04	6.95 .52	1.82 .10	2.61 O	1.31 O	4.61 .30	10.46 5.79	3.84 .86	42.52 7.88
1941 P Q	3.02 *1.27	5.56 2.59	3.93 1.18	3.98 .49	5.29 1.45	6.72 2.12	3.35 .19	1.45 O	.92 O	3.39 O	2.51 O	2.40 O	42.52 *9.29
1942 P Q	.86 O	1.98 O	1.07 O	6.15 .94	4.47 .62	7.67 3.28	.72 O	.89 O	8.52 2.48	2.49 T	3.53 1.06	4.05 1.75	42.40 10.13
1943 P Q	.92 .02	.17 O	2.06 .09	1.27 .03	4.92 .21	2.30 .39	# #						11.64 .74
1947 P Q					4.34 1.16	.54 T	.67 O	1.71 O	1.15 O	.33 O	1.37 O	3.51 O	13.62 1.16
1948 P Q	1.97 O	2.00 O	1.22 O	5.88 1.49	5.26 1.19	1.16 T	1.22 O	1.26 O	1.48 O	.73 O	1.12 O	1.54 O	24.84 2.68
1949 P Q	4.31 O	1.50 O	3.02 .17	4.33 .23	1.05 T	4.76 .26	4.80 .90	1.80 O	.17 O	4.60 O	.16 O	3.18 O	33.68 1.56
1950 P Q	2.21 O	3.60 1.33	.31 O	3.75 .27	3.08 O	2.42 O	1.79 O	.04 O	2.20 O	.86 O	1.04 O	.38 O	21.68 1.60
1951 P Q	1.91 O	2.27 O	1.80 O	2.58 O	3.31 O	4.36 .15	.02 O	.11 O	5.41 O	1.15 O	1.06 O	.52 O	24.50 .15
1952 P Q	1.77 O	2.87 O	3.32 O	4.96 .08	4.59 .48	1.11 O	.58 O	O O	.61 O	O O	6.96 O	4.59 .89	31.36 1.45
1953 P Q	.54 T	2.19 .03	3.66 1.17	3.17 .23	6.39 2.94	.39 O	.38 O	3.51 O	2.00 O	5.63 O	.87 O	4.29 .05	33.02 4.42
1954 P Q	1.22 O	.65 O	.42 O	3.25 .22	4.05 1.47	1.02 .06	1.94 O	.71 O	1.16 O	.89 O	3.26 O	.17 O	18.74 1.75
1955 P Q  P Q  P Q  P Q  P Q	2.23 O	4.29 .13	4.01 1.43	2.64 .58	5.59 .72	3.56 .35	1.10 O	1.13 O	.84 O	.87 O	.76 O	.85 O	27.87 3.21
** Av. P ** Av. Q	2.09 .11	2.73 .34	2.06 .33	3.85 .40	4.17 .80	3.57 .56	1.50 .10	1.33 O	2.08 .21	2.26 .02	2.84 .57	2.25 .30	30.73 3.74
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	52.95

**Notes:** \*Partially estimated. \*\*Does not include the part year amounts for 1943 and 1947. #Station discontinued June 30, 1943 to May 1, 1947. Quality of record: P - good; Q - good, except 54-55, excellent. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years.



LOCATION: Falls Co., Texas; 18 mi. S. E. of Waco; Brazos River Basin.

AREA: 20.8 ac.

SHAPE: Roughly rectangular, about 1200 ft. long by 750 ft. wide.

SLOPES: 22% is in less than 1% class; 67% in 1-3%; 11% in 3-6%. Aspect NE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 93%; Houston black clay, shallow phase over chalk - 7%; poorly defined division between topsoil and subsoil. These soils and particularly the Houston black clay are noted for the formation of large, extensive cracks upon drying.

EROSION: 2 - 74%; 3 - 26%.

LAND CAPABILITY: I - 22%; II - 64%; III - 14%.

SURFACE DRAINAGE: Good; 1938-42 through poorly defined field rills and small gullies; 1943-55 terrace system with one principal waterway 800 ft. long.

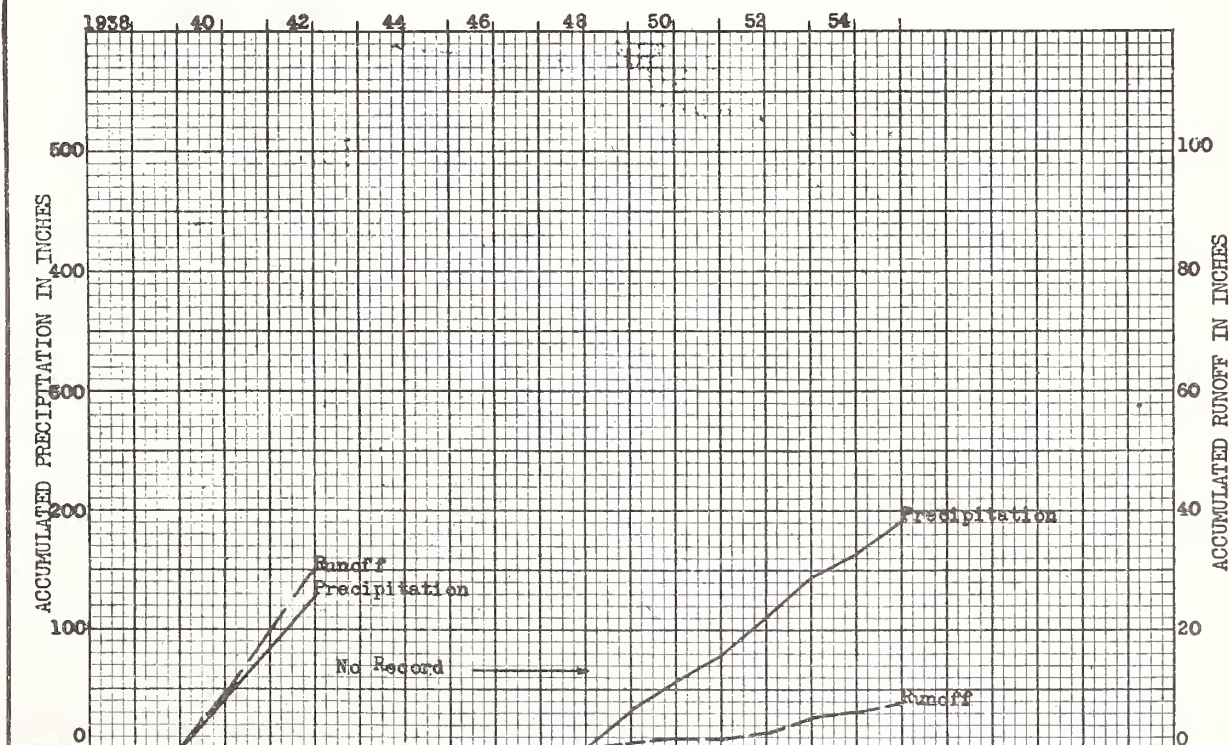
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 6 ft. Parshall flume, with weir for measuring low flows, 6 hr. chart; precipitation - one weighing recording raingauge, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads - 1.5% in 1938-55; 98.5% cultivated in 1938-42 with approximately 1/4 in oats and 3/4 in row crops with little attention to conservation practices. A terrace system was then constructed on the slightly reduced acreage of cultivated land, all tillage operations parallel to terraces and permanent grass established on 3.4% of the area. The cultivated area was in approximately 1/3 oats and 2/3 row crops, 1943-52; and 1/2 Fescue grass and clover and 1/2 in row crops, 1953-55, and all tillage operations parallel to terraces. The government owns and since 1943 has conducted farm operations on this area to maintain good conservation practices.

GENERALLY REPRESENTS: Areas in the Blacklands of Coastal Plains in Texas with moderately severe erosion problems, 1938-42; a terraced area with gradually improved management, 1943 to 1955.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Riesel, Texas, Watershed Y-8

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P			1.41	0.98	4.70	2.71	0.35	2.28	0.37	1.86	2.25	1.02	17.93
Q			0	0	.53	T	0	0	0	0	0	0	.53
1940 P	0.92	2.74	.60	4.36	2.07	6.60	1.79	2.92	1.17	4.51	9.73	3.76	41.17
Q	0	0	0	.46	.07	.76	.41	0	0	.28	6.07	1.22	9.27
1941 P	2.93	5.41	3.66	3.98	5.00	6.63	3.63	1.44	1.00	3.43	2.45	2.46	42.02
Q	1.60	2.86	1.13	.61	1.47	2.61	.48	0	0	0	0	T	10.76
1942 P	.75	1.93	1.10	6.26	4.47	7.51	.59	.83	8.65	2.42	3.59	3.94	42.04
Q	0	T	T	1.31	.73	3.15	0	0	2.51	0	1.01	1.31	10.02
1943 P	.93	.16	1.95	1.32	5.20	2.25	#						11.81
Q	.04	0	.14	.07	.33	.43	#						1.01
1949 P	4.12	1.52	2.97	4.23	1.09	4.84	5.06	1.71	.17	4.49	.17	3.02	33.39
Q	0	0	.06	.14	0	.03	.55	0	0	0	0	0	.78
1950 P	2.21	3.54	.26	3.79	3.07	2.53	1.77	.04	2.38	.78	1.06	.47	21.90
Q	0	.68	0	.03	0	.01	0	0	0	0	0	0	.72
1951 P	1.58	2.25	1.77	2.60	3.22	4.19	.14	.09	5.48	1.15	.99	.58	24.04
Q	0	0	0	0	0	.02	0	0	0	0	0	0	.02
1952 P	1.97	2.75	3.29	4.95	4.48	1.13	.56	0	.62	0	6.75	4.66	31.16
Q	0	0	.01	.03	.47	0	0	0	0	0	.02	.63	1.16
1953 P	.53	2.06	3.72	3.09	6.18	.45	.30	3.36	1.98	5.47	.89	4.10	32.13
Q	0	T	.81	.11	1.76	0	0	0	0	0	0	T	2.68
1954 P	1.18	.72	.41	3.44	3.89	1.15	1.81	.54	1.17	.81	3.04	.18	18.34
Q	0	0	0	.15	.86	T	0	0	0	0	0	0	1.01
1955 P	2.23	4.37	4.13	2.70	5.72	3.73	1.09	1.06	.79	.95	.76	.85	28.38
Q	0	.02	1.05	.21	.18	.05	0	0	0	0	0	0	1.51
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**Av. P	1.84	2.73	2.19	3.94	3.92	3.88	1.67	1.20	2.34	2.40	2.94	2.40	31.45
**Av. Q	.16	.36	.31	.30	.55	.66	.14	0	.25	.03	.71	.32	3.79
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** #Station discontinued June 30, 1943, to Jan. 1, 1949. \*\*Does not include the part year amounts for 1939 and 1943. Quality of Records: P-good; Q-good 1939-43, excellent 1949-55. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years.

LOCATION: Falls Co., Texas; 18 mi. S. E. of Waco; Brazos River Basin.

AREA: 21.0 ac.

SHAPE: Broad fan, about 1600 ft. wide by 1100 ft. long.

SLOPES: 85% is in 1-3% class; 15% in 3-6%. Aspect E.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 94%; Houston black clay, shallow phase over chalk - 5%; Austin clay, shallow phase - 1%. Poorly defined division between topsoil and subsoil. These soils and particularly the Houston black clay are noted for the formation of large, extensive cracks upon (drying).

EROSION: 2 - 86%; 3 - 13%; 4 - 1%.

LAND CAPABILITY: II - 88%; III - 12%.

SURFACE DRAINAGE: Good; 1938-42, drainage by poorly defined rills and field gullies; principal waterway 1100 ft. long; 1943-55, terrace system and two waterways totalling 1100 ft.

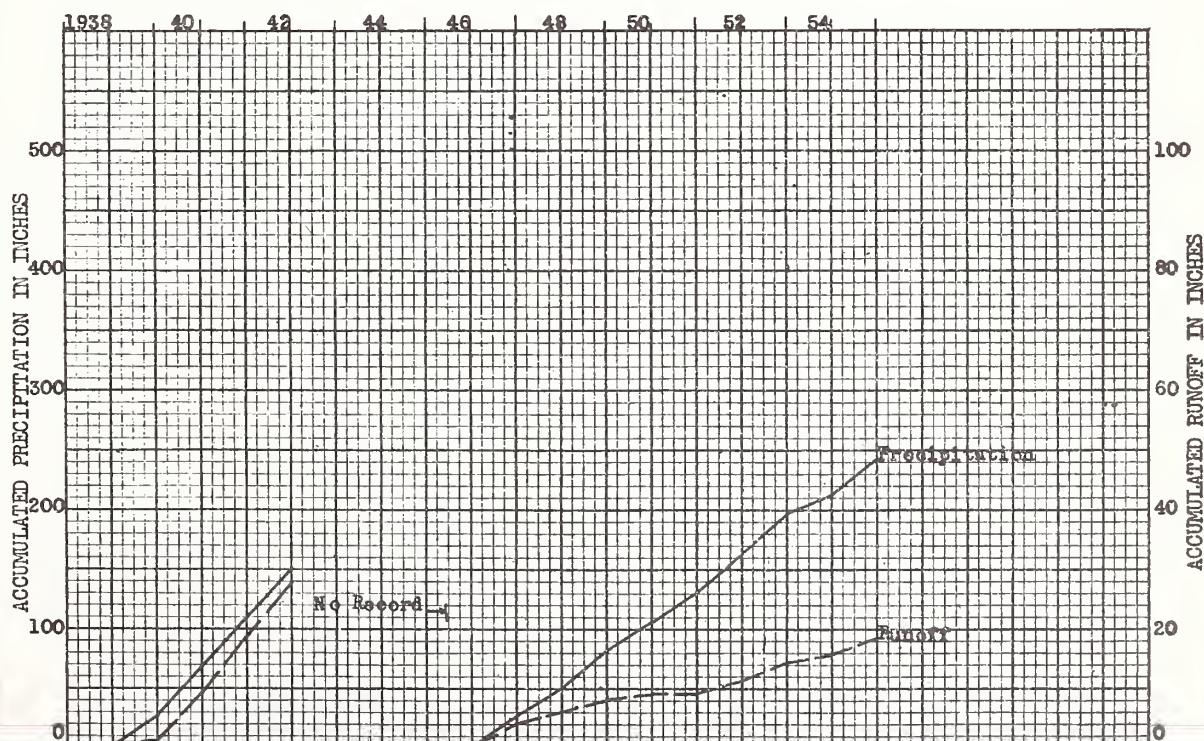
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - modified 6 ft. Parshall flume with weir for measuring low flows, 6 hr. chart; precipitation - two weighing recording raingages, 6 hr. chart.

WATERSHED CONDITIONS: Gravel roads - 2.4% in 1938-55; no permanent grass in 1938-42, 13.2% in 1943-55; remainder of area cultivated. During 1938-42 the cultivated land was farmed in straight rows with no special conservation practices and approximately 1/4 of the area in oats and 3/4 in row crops each year. A terrace system was then established on the reduced acreage of cultivated land prior to the 1943 crop. During 1943-55 approximately 1/3 of the cultivated land was in oats and clover and 2/3 in row crops each year, and all tillage operations parallel to terraces. The government owns and since 1943 has conducted farm operations on this area to maintain good conservation practices.

GENERALLY REPRESENTS: Areas in the Blacklands of Coastal Plains in Texas with moderately severe erosion problems, 1938-42; a terraced area with gradually improved management, 1943 to 1955.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Riesel, Texas Watershed Y-10

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P							2.21	0.77	0.84	0.13	0.91	2.75	7.61
Q							0	0	0	0	0	0	0.00
1939 P	3.84	2.90	1.18	0.82	4.58	2.65	.30	2.20	.70	1.75	2.22	.96	24.10
Q	T	.07	0	0	.55	0	0	0	0	0	0	0	.62
1940 P	.94	2.49	.53	4.36	1.89	6.42	1.72	2.99	1.10	4.04	10.21	3.77	40.46
Q	0	0	0	.33	.10	1.21	.50	0	0	.21	5.05	1.02	8.42
1941 P	2.85	5.46	3.58	4.28	4.96	6.77	3.52	1.36	.83	3.37	2.20	2.47	41.65
Q	1.20	2.72	.85	.60	1.26	2.16	.31	0	0	0	0	0	9.10
1942 P	.66	1.73	1.13	6.62	4.28	8.07	.69	1.10	8.27	2.26	3.16	3.55	41.52
Q	0	0	0	1.42	.45	2.76	0	0	2.63	.01	.69	.76	8.72
1943 P	1.01	.15	2.18	1.49	5.03	2.57	1.99	#					14.42
Q	.01	0	.14	.07	.33	.40	.01	#					.96
1946 P					9.11	2.32	1.23	1.75	4.66	1.61	4.86	2.40	27.94
Q					3.47	.34	0	0	0	0	.60	.40	4.81
1947 P	3.84	.57	4.34	2.77	4.28	.36	.77	1.41	1.43	.22	1.39	3.64	25.02
Q	1.90	0	1.32	.11	.94	0	0	0	0	0	0	0	4.27
1948 P	2.08	1.96	1.04	5.55	5.47	1.36	1.23	.67	1.77	.64	1.13	1.44	24.34
Q	0	0	0	1.14	.57	0	0	0	0	0	0	0	1.71
1949 P	4.16	1.67	2.58	4.05	1.14	4.89	5.18	1.60	.20	4.45	.22	2.98	33.12
Q	0	0	.09	.34	0	.26	.96	0	0	0	0	0	1.65
1950 P	2.00	3.59	.27	3.66	3.00	2.46	1.77	.08	2.68	.90	1.11	.41	21.93
Q	T	.89	0	.12	0	T	0	0	0	0	0	0	1.01
1951 P	1.45	2.38	1.76	2.61	3.12	4.35	.13	.11	5.68	1.30	1.02	.50	24.41
Q	0	0	0	T	.02	.14	0	0	0	0	0	0	.16
1952 P	1.80	2.79	3.23	5.23	5.06	1.18	.62	T	.65	0	7.05	4.72	32.31
Q	.02	0	.05	.28	.70	0	0	0	0	0	.05	.94	2.04
1953 P	.57	1.83	3.72	3.14	6.00	.50	.35	3.58	1.80	5.68	.94	4.34	32.45
Q	T	T	1.04	.22	2.37	0	0	0	0	0	0	.05	3.68
1954 P	1.27	.73	.41	3.51	3.83	1.38	1.57	.44	1.22	.82	2.87	.17	18.22
Q	0	0	0	.27	.96	.08	0	0	0	0	0	0	1.31
1955 P	2.28	4.20	4.05	2.52	5.70	3.78	1.05	1.12	1.11	1.14	.86	.81	28.62
Q	0	.03	1.12	.45	.60	.36	0	0	0	0	0	0	2.56
P													
Q													
P													
Q													
P													
Q													
**Av. P	2.13	2.48	2.14	3.78	4.10	3.40	1.45	1.28	2.11	2.04	2.64	2.29	29.84
**Av. Q	.24	.29	.34	.41	.66	.54	.14	0	.20	.02	.45	.21	3.50
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.96

**Notes:** \*\*Does not include the part year amounts for 1938, 1943, 1946. #Station discontinued August, 1943 to May, 1946. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of record: P - good; Q - good 1938-43, excellent 1946-55.



LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 2.70 ac.

SHAPE: Fan, about 420 ft. wide by 400 ft. long.

SLOPES: 100% is in 1-3% class; average slope 1.91%. Aspect NE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 96%; Houston black clay, gravelly phase - 4%. Poorly defined division between topsoil and subsoil. These soils are noted for the formation of large, extensive shrinkage cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 400 ft.

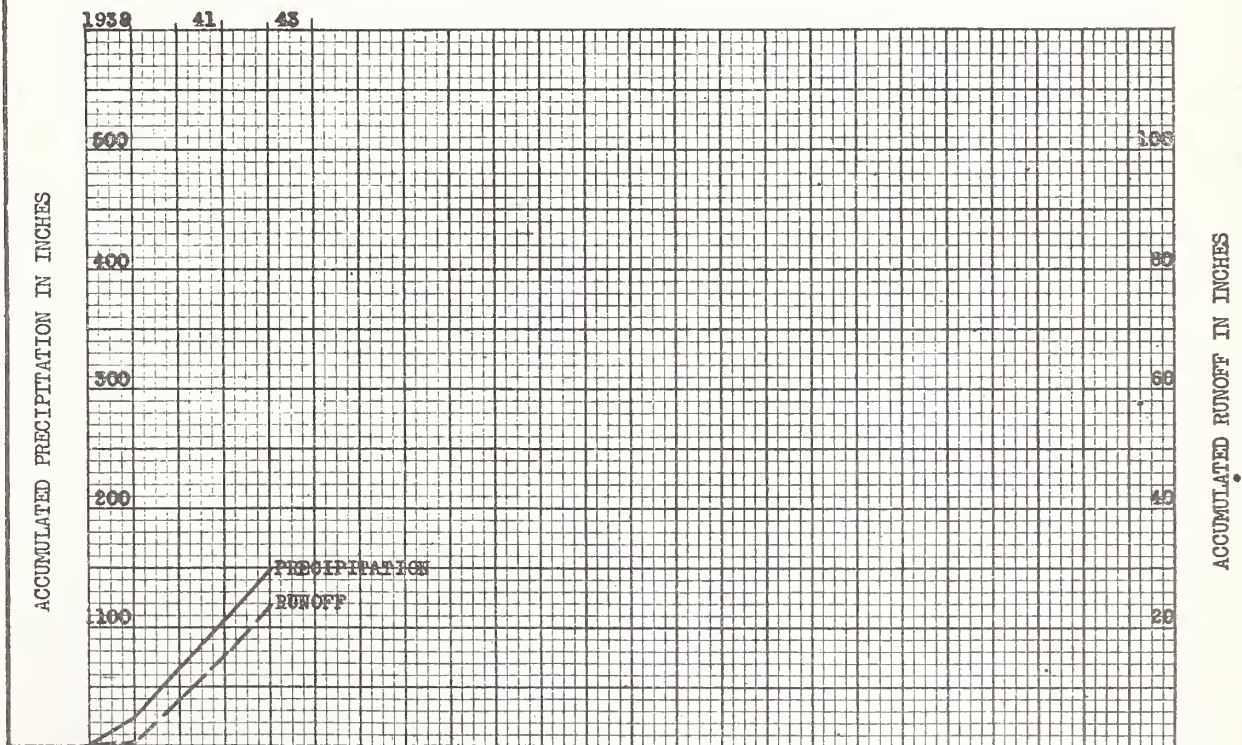
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 210 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording rainage, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated to one crop each year, straight rows transverse to the general direction of slope. Crops; corn - 1938, cotton - 1939, 41, and 43, oats - 1940 and 42.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at any time.

#### ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Riesel, Texas    Watershed SW-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P				2.92	2.40	3.31	2.19	0.90	0.84	0.22	0.66	2.71	16.15
Q				.33	0	0	0	0	0	0	0	0	.33
1939 P	3.74	2.79	1.32	1.07	4.76	2.61	.31	2.37	.21	1.86	2.39	1.20	24.63
Q	0	0	0	0	.57	0	0	0	0	0	0	0	.57
1940 P	.95	2.75	.58	4.63	1.80	*6.60	2.05	1.75	1.20	4.88	10.46	3.84	41.49
Q	0	T	0	.01	T	.01	.27	0	0	.56	5.61	.97	7.43
1941 P	3.07	5.49	3.88	4.00	5.07	6.58	2.96	1.10	.80	3.24	2.43	2.45	41.07
Q	1.25	1.92	.44	.08	1.16	2.86	.05	T	0	0	0	0	7.76
1942 P	.79	1.77	.98	6.40	4.06	7.61	.83	1.26	7.98	2.74	3.31	4.27	42.00
Q	T	.01	0	.66	.10	3.31	0	0	3.03	0	.56	T	7.67
1943 P	.89	.15	3.03	1.26	4.79	2.24	#						12.36
Q	0	0	.18	.28	.49	.75	#						1.70
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** Av. P	2.14	3.20	1.69	4.02	3.92	5.85	1.54	1.62	2.55	3.18	4.65	2.94	37.30
** Av. Q	.31	.48	.11	.19	.46	1.54	.08	T	.76	.14	1.54	.24	5.85
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** \*Partially estimated. \*\*Does not include the part year amounts for 1938 and 1943. #Station discontinued June 30, 1943. Quality of record: P - good; Q - good. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years.



2-56, revised 2-59

RIESEL (WACO), TEXAS Watershed SW-3

LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 3.09 ac.

SHAPE: Fan, about 500 ft. wide by 450 ft. long.

SLOPES: 100% is in 1-3% class; average slope 1.91%. Aspect S.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 100%. Poorly defined division between topsoil and subsoil. This soil is noted for the formation of large extensive shrinkage cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies, length of principal waterway 450 ft.

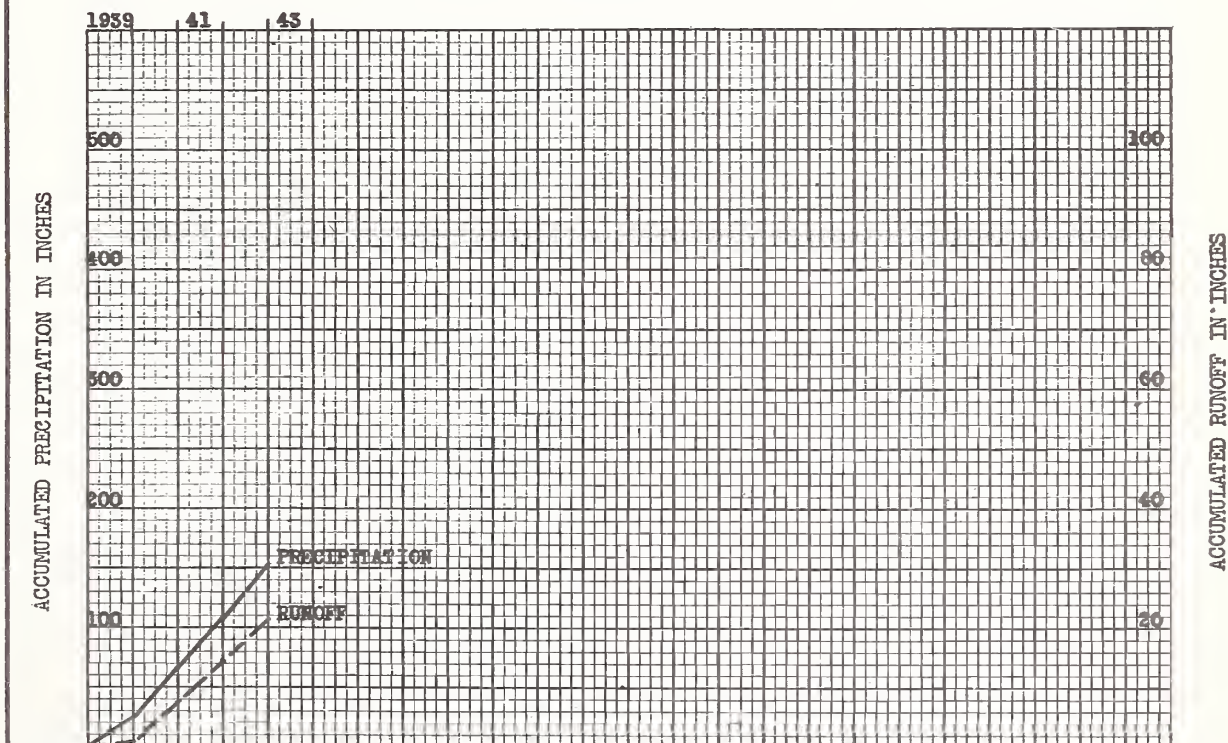
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 190 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording rain gauge, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated with straight rows transverse to the general direction of slope. Crops each year; corn - 1938, cotton - 1939, 41, and 43, oats - 1940 and 42.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at anytime.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



Riesel, Texas Watershed SW-3

**Av. P	2.25	3.24	1.66	4.01	4.11	5.91	1.60	1.57	2.63	3.17	4.58	2.90	37.63
**Av. G	.28	.38	.05	.06	.47	1.41	.04	0	.51	.05	1.52	.44	5.21
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

Notes: \*\*Does not include the part year amounts for 1943. #Station discontinued June 30, 1943.  
Quality of records: P - good; Q - good. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years.

LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 3.09 ac.

SHAPE: Fan, about 480 ft. wide by 450 ft. long.

SLOPES: 48% is in 1-3% class; 52% in 3-6%; average slope 3.27%. Aspect SW.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 8%; Houston black clay, shallow phase - 92%. Poorly defined division between topsoil and subsoil. These soils are noted for the formation of large extensive shrinkage cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 50%; III - 50%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 450 ft.

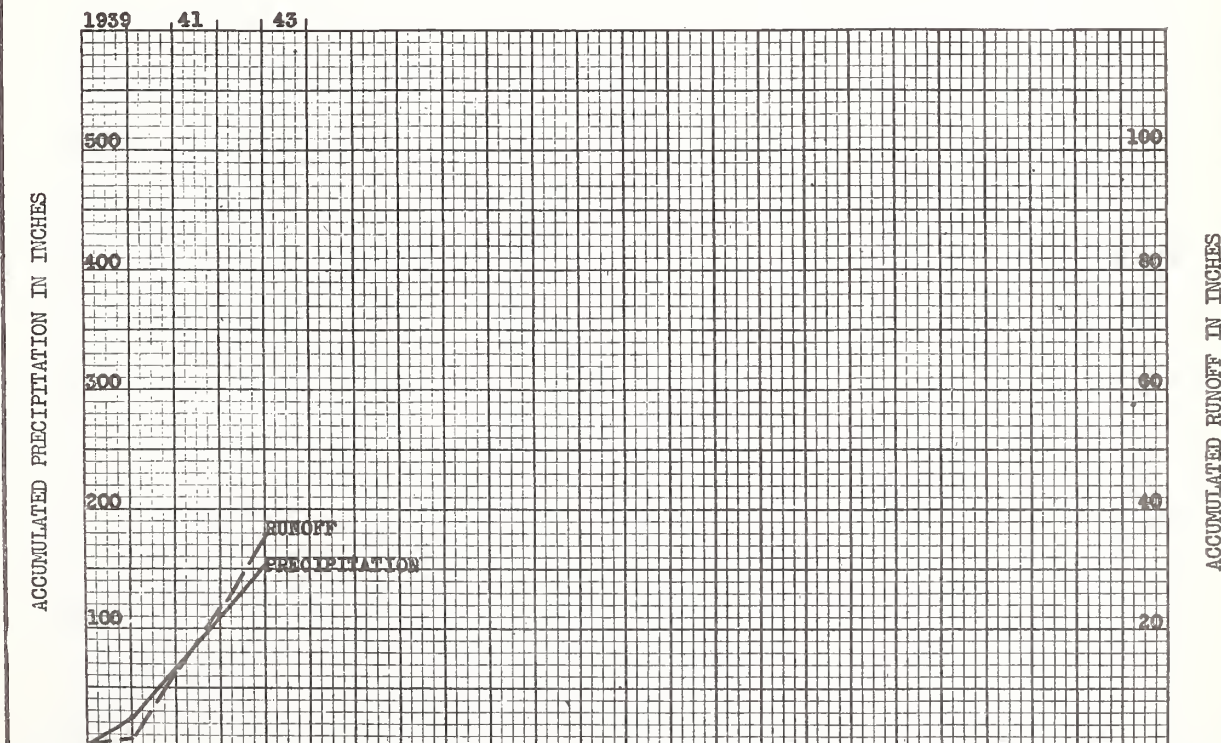
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 170 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording raingage, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated to one crop each year. Straight rows transverse to the general direction of slope. Crops; cotton - 1939, and 42, corn - 1938, oats - 1940, 41 and 43.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at anytime.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

Riesel, Texas Watershed SW-5

Notes: \*\*Does not include the part year amounts for 1938 and 1943. #Station discontinued July 20, 1943. Quality of records: P - good; Q - fair. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years.



LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 3.04 ac.

SHAPE: Fan, about 400 ft. wide by 410 ft. long.

SLOPES: 38% is in 1-3% class; 62% in 3-6%; average slope 3.18%. Aspect E.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay, shallow phase - 100%. Poorly defined division between topsoil and subsoil. This soil is noted for the formation of large, extensive cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 45%; III - 55%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 410 ft.

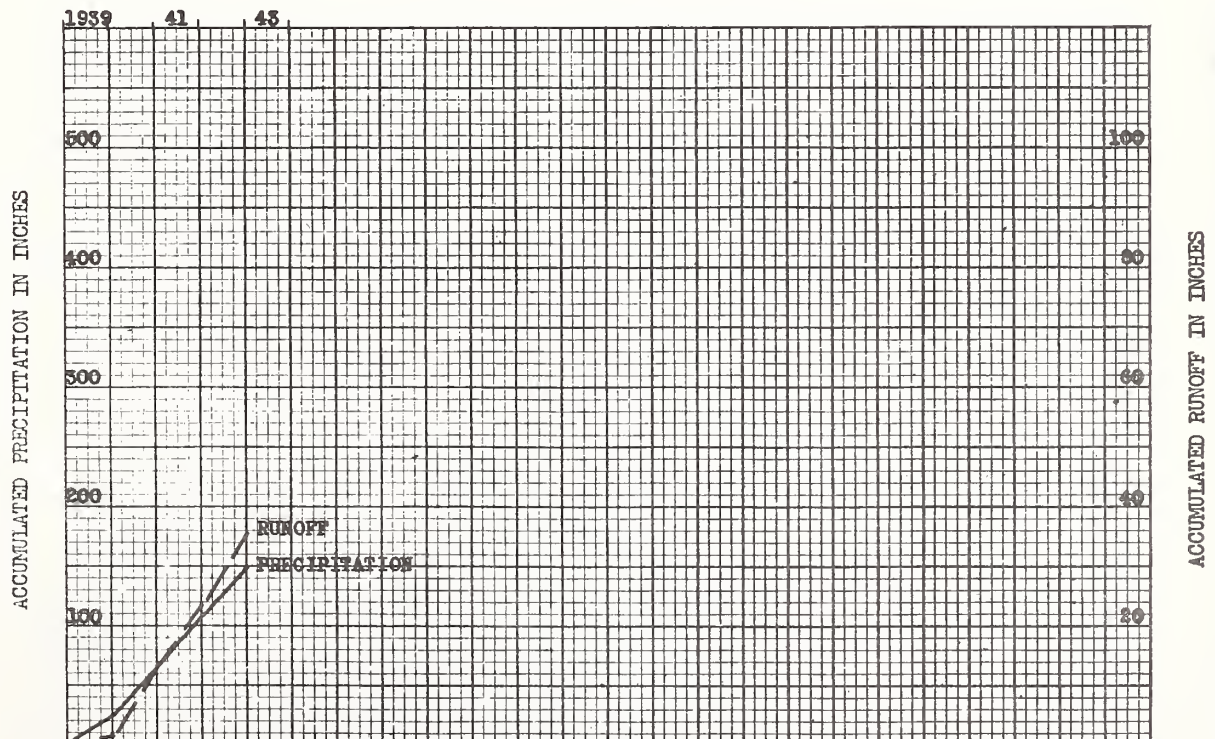
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 208 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording raingage, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated to one crop each year, straight rows transverse to the general direction of slope. Crops; corn - 1938, cotton - 1939, and 42, oats - 1940, 41 and 43.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at anytime.

#### ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Riesel, Texas Watershed SW-6

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P											0.65	2.73	3.38
Q											0	0	0
1939 P	3.90	3.01	1.28	1.29	4.91	2.37	0.34	2.72	0.34	1.99	2.57	1.15	25.87
Q	0	0	0	0	1.51	0	0	0	0	0	0	0	1.51
1940 P	1.02	2.75	.56	4.57	1.87	6.49	2.21	1.74	1.29	4.58	10.40	3.68	41.16
Q	0	T	0	.01	T	.15	.61	0	0	1.22	7.45	1.33	10.77
1941 P	3.15	5.43	3.86	4.09	4.74	6.41	2.86	1.27	.78	3.60	2.40	2.43	41.02
Q	2.00	2.74	1.30	.54	1.05	3.05	.16	T	0	0	T	T	10.84
1942 P	.68	1.71	.91	6.46	4.42	7.33	.96	1.12	7.55	2.77	3.30	4.14	41.35
Q	T	T	0	1.36	.37	4.30	0	0	3.08	.06	1.29	2.02	12.48
1943 P	.90	.09	2.01	1.22	4.50	2.12	#						10.84
Q	.07	0	.19	.12	.11	.29	#						.78
P													
Q													
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**Av. P	2.19	3.22	1.65	4.10	3.98	5.65	1.59	1.71	2.49	3.24	4.67	2.85	37.34
**Av. Q	.50	.68	.32	.48	.73	1.88	.19	T	.77	.32	2.18	.84	8.89
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** \*\*Does not include the part year amounts for 1938 and 1943. #Station discontinued July 20, 1943. Quality of records: P - good; Q - fair. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years.

LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 3.15 ac.

SHAPE: Fan, about 420 ft. wide by 470 ft. long.

SLOPES: 11% is in less than 1% class; 89% in 1-3%; average slope 1.67%. Aspect NE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 100%. Poorly defined division between topsoil and subsoil. This soil is noted for the formation of large, extensive shrinkage cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: I - 5%; II - 95%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 470 ft.

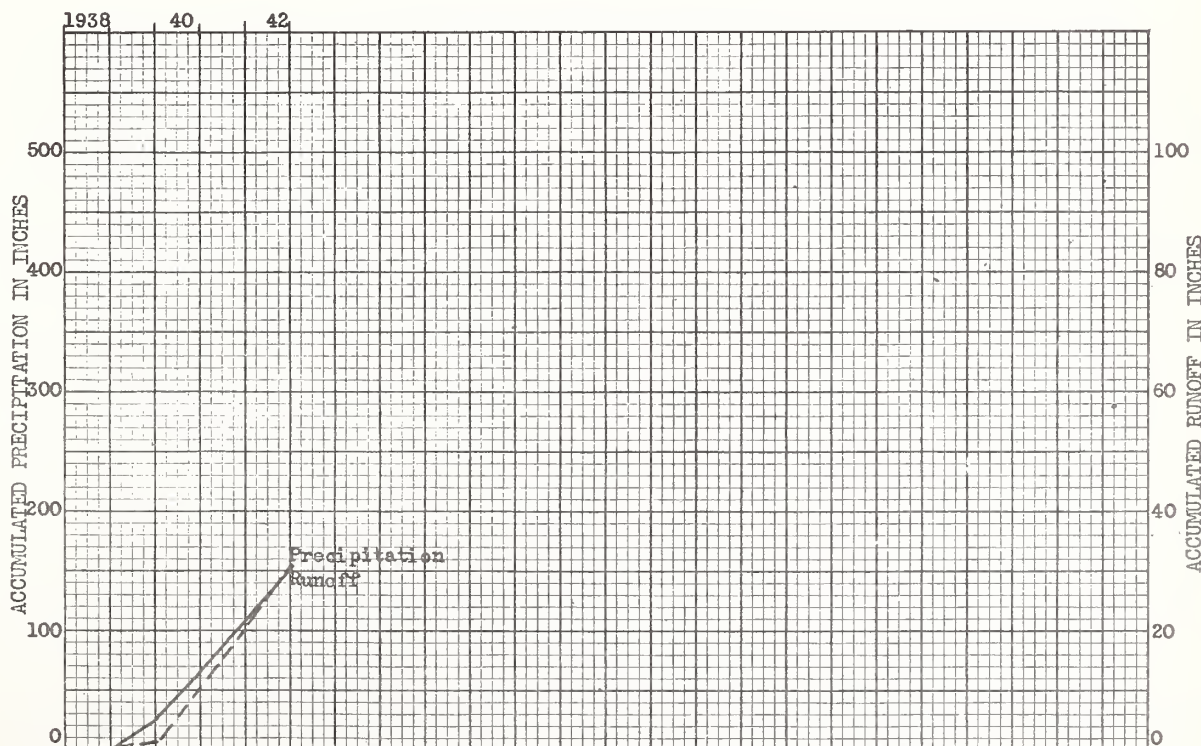
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 210 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording rainage, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated to one crop each year, straight rows transverse to the general direction of slope. Crops; corn - 1938, cotton - 1939, 41, and 43, oats - 1940 and 42.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at anytime.

#### ACCUMULATED PRECIPITATION AND RUNOFF





Riesel, Texas, Watershed SW-7

** Av. P	2.21	3.39	1.73	4.01	4.21	5.87	1.60	1.81	2.80	3.13	4.71	2.84	38.31
** Av. G	.35	.53	.15	.25	.90	1.92	.17	0	.83	.19	1.87	.59	7.75

Notes: #Station discontinued July 20, 1943. \*\*Does not include the part year amounts for 1938 & 1943. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of records: P - good; Q - good.

LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 3.23 ac.

SHAPE: Broad fan, about 530 ft. wide by 400 ft. long.

SLOPES: 75% is in less than 1% class; 25% in 1-3%; average slope .94%. Aspect S.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 100%. Poorly defined division between topsoil and subsoil. The soil is noted for the formation of large, extensive shrinkage cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: I - 60%; II - 40%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 400 ft.

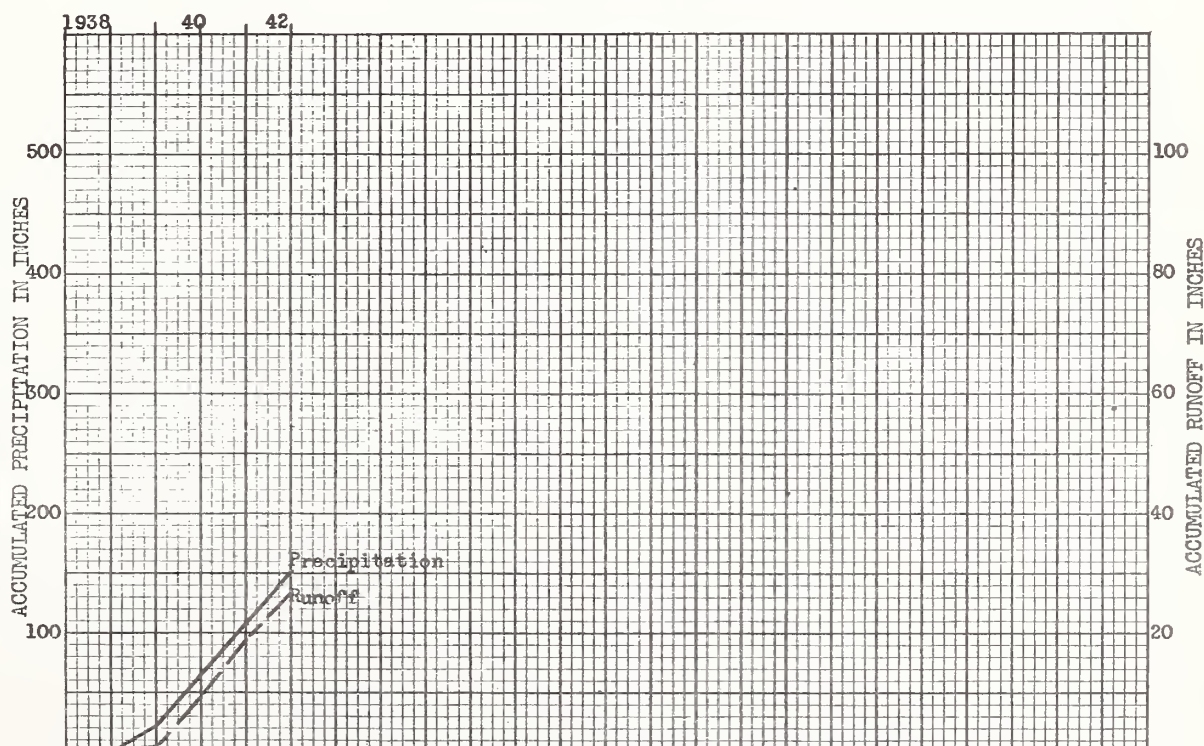
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 108 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording rainage, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated to one crop each year, straight rows transverse to the general direction of slope. Crops; corn - 1938, cotton - 1939, and 42, oats - 1940, 41 and 42.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at anytime.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

Riesel, Texas, Watershed SW-11

Notes: #Station discontinued July 22, 1943. \*\*Does not include the part year amounts for 1938 & 1943. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of records: P - good; Q - good.



LOCATION: McLeman Co., Texas; 18 mi. S. E. of Waco; Brazos River Basin.

AREA: 2.97 ac.

SHAPE: Fan, about 500 ft. wide by 350 ft. long.

SLOPES: 22% is in 1-3% class; 78% in 3-6%; average slope 3.81%. Aspect N.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay, 100%. Poorly defined division between topsoil and subsoil. This soil is noted for the formation of large extensive cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: III - 100%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by poorly defined natural depressions; length of principal waterway 380 ft.

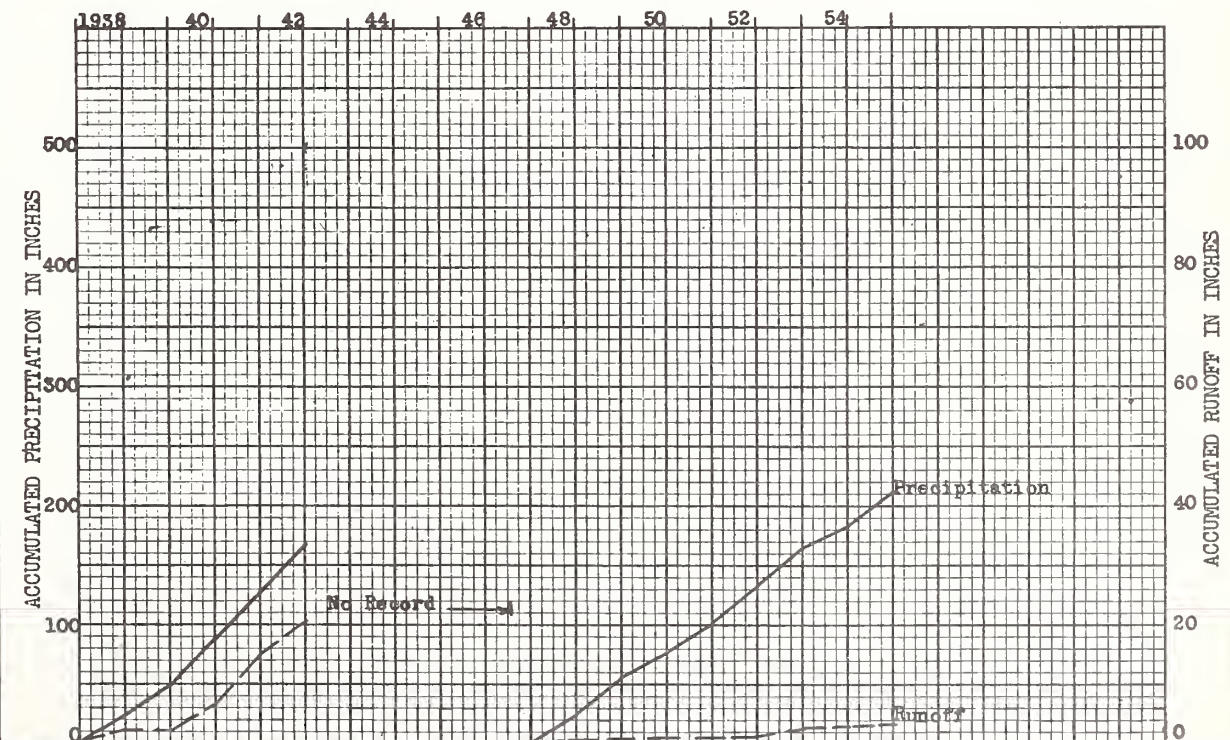
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 270 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording rainage, 6 hr. chart.

WATERSHED CONDITIONS: Native cover, primarily grasses; has never been cultivated or grazed, but one crop of hay harvested each year since about 1880.

GENERALLY REPRESENTS: Small areas in the Blacklands of Coastal Plain in Texas with native cover harvested for hay.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Riesel, Texas, Watershed SW-12

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P	3.99	2.71	2.76	4.01	2.50	3.20	1.58	0.74	0.96	0.16	0.83	2.63	26.07
Q	1.53	.76	.01	.18	0	0	0	0	0	0	0	0	2.48
1939 P	3.76	2.77	1.12	.80	4.84	2.71	.31	2.31	.72	1.83	2.22	.93	24.32
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1940 P	.97	2.53	.56	4.32	2.02	6.45	1.81	2.86	1.07	4.07	9.89	3.62	40.17
Q	0	0	0	0	0	0	0	0	0	.02	3.05	1.27	4.34
1941 P	2.87	5.52	3.54	4.22	5.09	6.92	3.51	1.33	.79	3.36	2.39	2.43	41.97
Q	1.82	3.02	1.07	.17	.56	2.20	.01	0	0	0	0	0	8.85
1942 P	.57	1.79	1.12	6.58	4.23	7.87	.68	.83	8.57	2.32	3.20	3.60	41.36
Q	0	0	0	.49	.09	3.02	0	0	.95	0	.04	1.03	5.62
1943 P	1.02	.14	2.13	1.40	4.95	2.58	#						12.22
Q	.01	0	.13	T	0	.01	#						.15
1947 P						.49	.74	1.40	1.41	.22	1.31	3.51	9.08
Q						0	0	0	0	0	0	0	0
1948 P	2.06	1.90	1.11	5.49	5.65	1.26	1.21	.74	1.69	.63	1.17	1.45	24.36
Q	0	0	0	.27	.25	0	0	0	0	0	0	0	.52
1949 P	4.10	1.71	2.63	3.93	1.09	4.85	5.28	1.61	.15	4.28	.22	2.95	32.80
Q	0	0	.06	.02	0	0	0	0	0	0	0	0	.08
1950 P	2.04	3.40	.26	3.58	2.89	2.37	1.79	.07	2.47	.90	1.11	.39	21.27
Q	0	.72	0	0	0	0	0	0	0	0	0	0	.72
1951 P	1.50	2.32	1.78	2.72	3.10	4.31	.16	.13	5.82	1.26	1.02	.55	24.67
Q	0	0	0	0	0	0	0	0	T	0	0	0	T
1952 P	1.74	2.72	3.17	5.08	4.74	1.16	.48	0	.66	0	6.74	4.61	31.10
Q	0	0	0	0	0	0	0	0	0	0	0	.41	.41
1953 P	.55	1.82	3.83	3.20	5.90	.48	.36	3.30	1.73	5.68	.91	4.26	32.02
Q	.01	0	.91	.01	.45	0	0	0	0	0	0	.01	1.39
1954 P	1.23	.74	.44	3.61	3.74	1.37	1.72	.46	1.23	.85	2.85	.19	18.43
Q	0	0	0	.01	.02	0	0	0	0	0	0	0	.03
1955 P	2.21	4.11	4.13	2.42	6.07	3.87	1.12	1.15	1.11	1.19	.81	.86	29.05
Q	0	0	.13	.02	.02	.01	0	0	0	0	0	0	.18
P													
Q													
P													
Q													
P													
Q													
P													
Q													
**Av. P	2.12	2.62	2.03	3.84	3.99	3.60	1.54	1.19	2.07	2.04	2.57	2.19	29.80
**Av. Q	.26	.35	.17	.09	.11	.40	T	0	.07	T	.24	.21	1.90
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** #Station discontinued June 30, 1943, to June 1, 1947. \*\*Does not include the part year amounts for 1943 and 1947.

Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of Records: P - good; Q - excellent.



LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 3.19 ac.

SHAPE: Fan, about 480 ft. wide by 430 ft. long.

SLOPES: 77% is in 1-3% class; 23% in 3-6%; average slope 3.07%. Aspect SE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 26%; Houston black clay, shallow phase over chalk - 74%. Poorly defined division between topsoil and subsoil. These soils, particularly the Houston black clay are noted for the formation of large extensive shrinkage cracks upon drying.

EROSION: 2 - 5%; 3 - 95%.

LAND CAPABILITY: II - 70%; III - 30%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 430 ft.

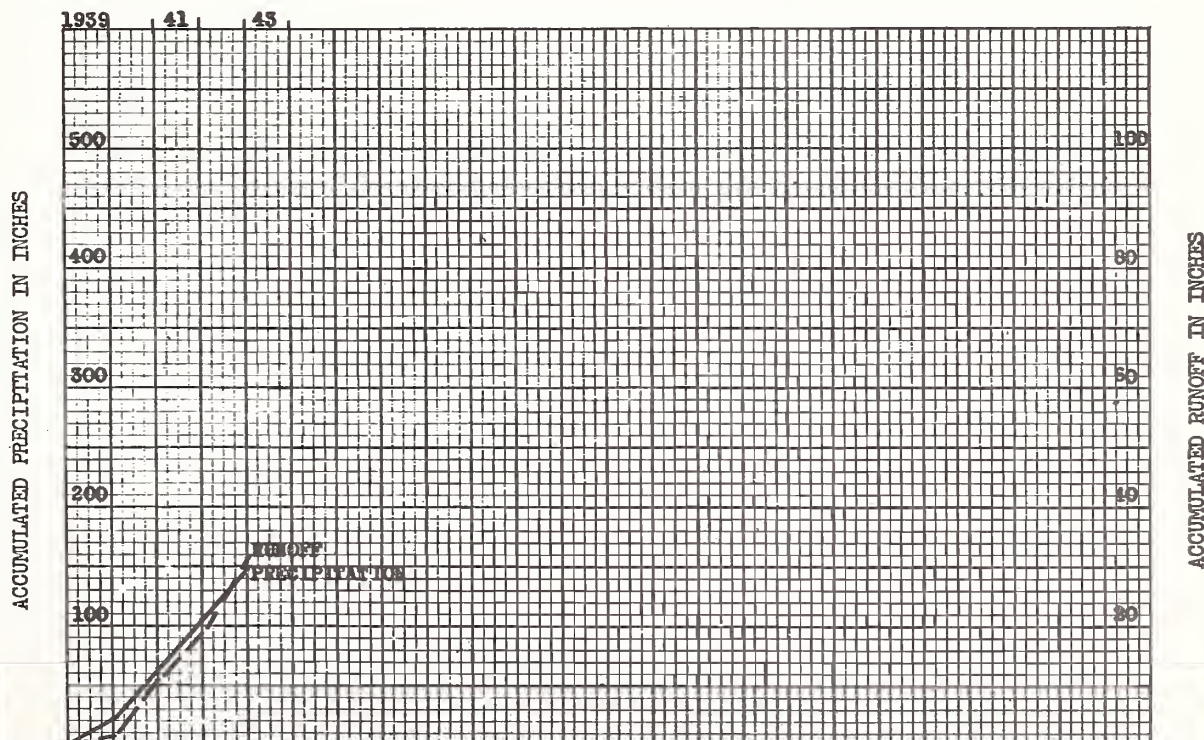
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 185 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording raingage, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated to one crop each year, straight rows transverse to the general direction of slope. Crops; corn - 1938, cotton - 1939, and 42, oats - 1940, 41 and 43.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at anytime.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



## Riesel, Texas Watershed SW-13

Notes: \*\*Does not include the part year amounts for 1938 and 1943. #Station discontinued June 30, 1943. Quality of records; P - good; Q - fair. Normal P based on Waco Weather Bureau record computed for several stations in the vicinity of Waco with length of records from 10 to 65 years.

LOCATION: McLennan Co., Texas; 17 mi. S. E. of Waco; Brazos River Basin.

AREA: 3.02 ac.

SHAPE: Fan, about 590 ft. wide by 375 ft. long.

SLOPES: 100% is in 1-3% class; average slope, 1.55%. Aspect E.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 5%; Houston-Hunt clay - 95%. Poorly defined division between topsoil and subsoil. These soils, particularly the Houston black clay are noted for the formation of large, extensive cracks upon drying.

EROSION: 2- 60%; 3 - 40%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 375 ft.

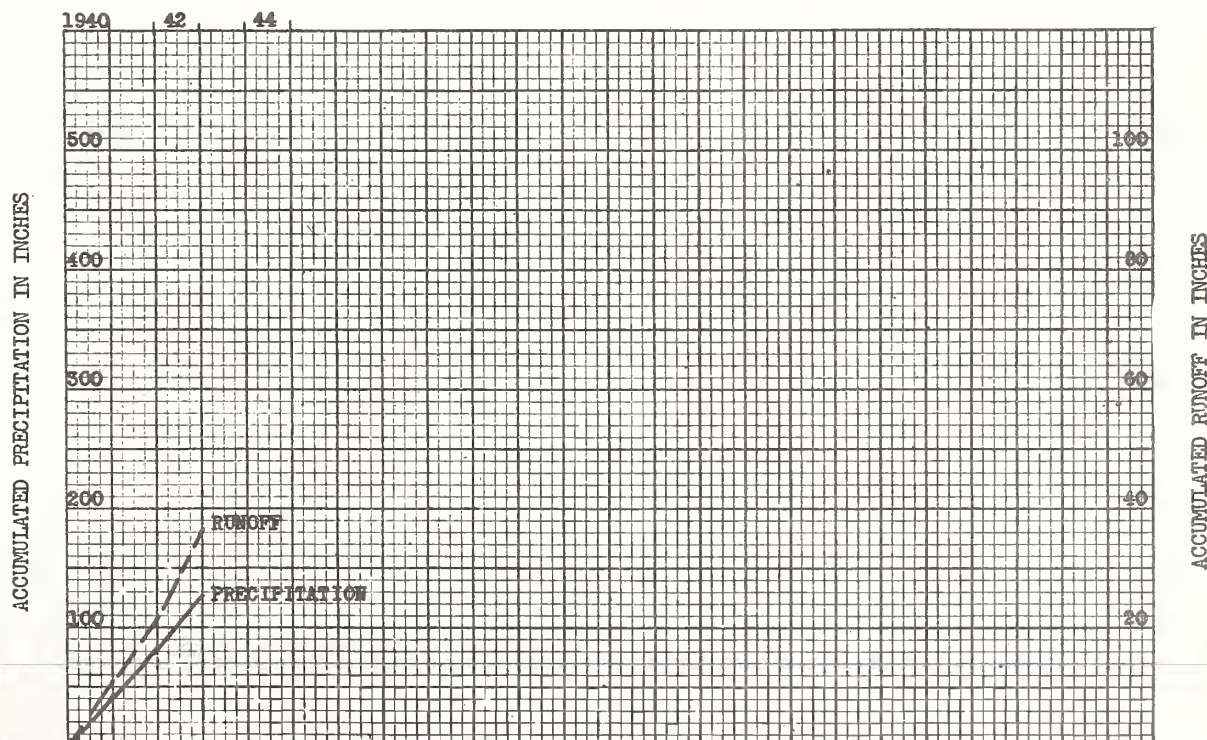
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 205 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording rain gauge, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated to one crop each year, straight rows transverse to the general direction of slope. Crops; corn - 1938, cotton - 1939, 41, and 43, oats - 1940 and 42.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at anytime.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

Riesel, Texas Watershed SW-14

Notes: \*\*Does not include the part year amounts for 1939 and 1943. #Station discontinued June 30, 1943. Quality of records: P - good; Q - good. Normal P based on Waco Weather Bureau record computed for several stations in the vicinity of Waco with length of records from 10 to 65 years.



LOCATION: McLennan Co., Texas; 18 mi. S. E. of Waco; Brazos River Basin.

AREA: 3.17 ac.

SHAPE: Fan, about 420 ft. wide by 440 ft. long.

SLOPES: 100% is in 1-3% class; average slope 2.58%. Aspect W.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 100%. Poorly defined division between topsoil and subsoil. This soil is noted for the formation of large, extensive shrinkage cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 440 ft.

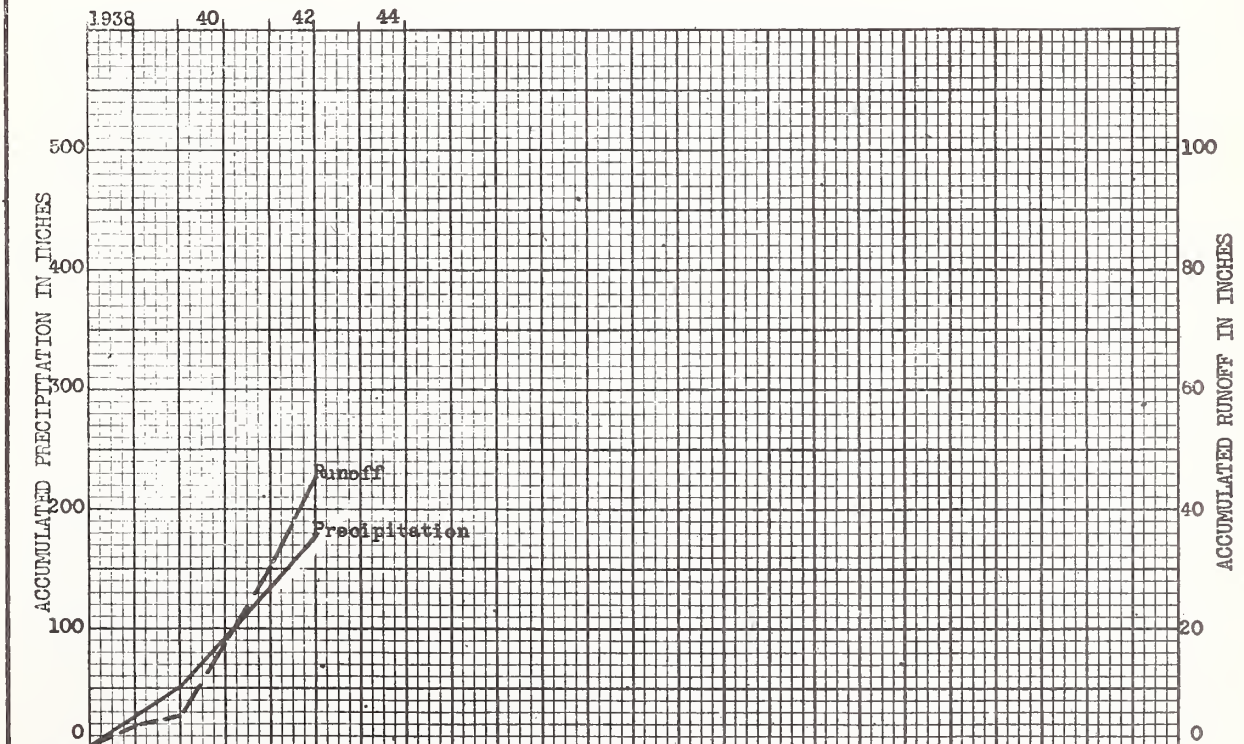
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. Parshall flume near center of covered concrete gutter 200 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording rain gauge, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated to one crop each year, straight rows transverse to the general direction of slope. Crops; corn - 1938, cotton - 1939, 41, and 43, oats - 1940 and 42.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at anytime.

ACCUMULATED PRECIPITATION AND RUNOFF



Watershed SW-16

Notes: # Station discontinued June 30, 1943. \*\* Does not include part year amounts for 1937 and 1943. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of records: P - good; Q - fair.



LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 2.99 ac.

SHAPE: Fan, about 400 ft. wide by 380 ft. long.

SLOPES: 100% is in 1-3% class; average slope 1.83%. Aspect E.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 70%; Houston black clay, shallow phase - 30%. Poorly defined division between topsoil and subsoil. These soils are noted for the formation of large extensive cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: II - 100%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 380 ft.

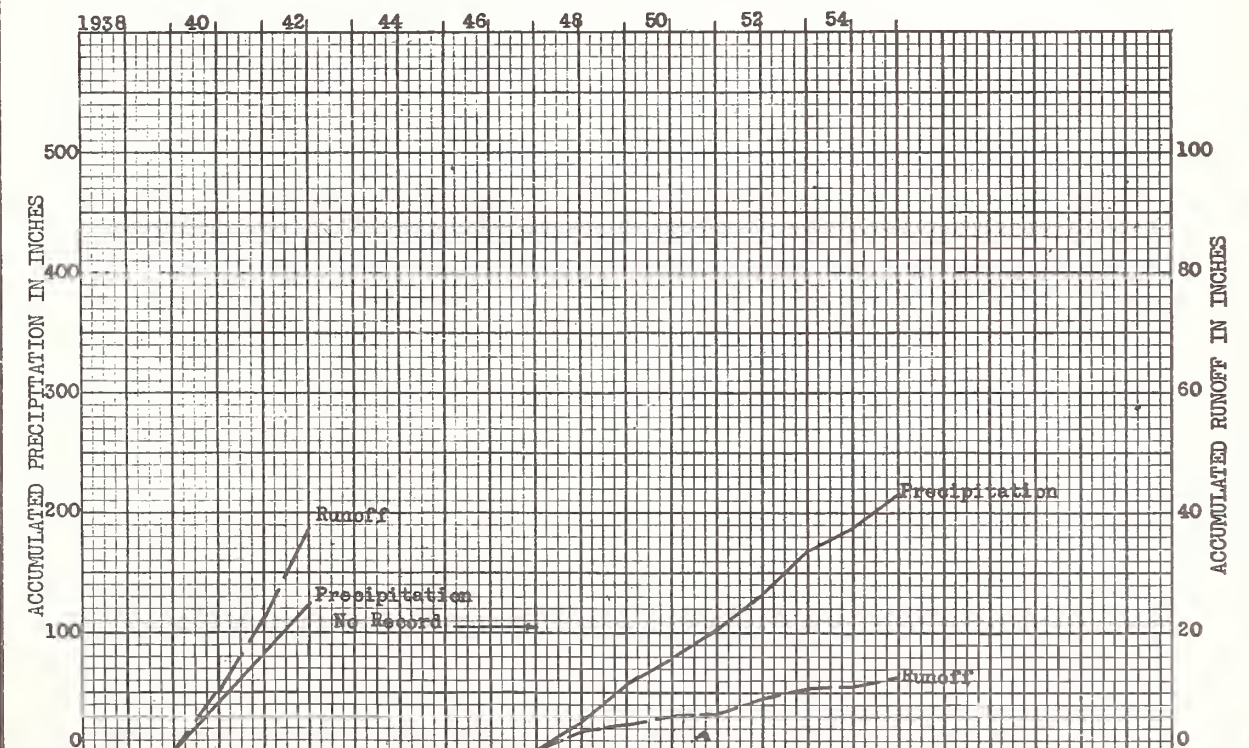
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 260 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording rain gauge, 6 hr. chart.

WATERSHED CONDITIONS: 1938-47, 100% cultivated to one crop each year with straight rows transverse to the general direction of slope. Crops: cotton 1939, 41, 43, 45, 47; corn 1938, 46; oats 1940, 42, 44. Sprig sodded with Bermuda grass and seeded with various clovers, spring 1948. Continuously in grass and clover used for pasture 1948-55. The only fertilizer applications were 200 lbs. of 20% phosphate per acre on the upper third of the area in the fall of 1949 and 200 lbs. of 20% phosphate per acre over the entire area in the fall of 1953. The grasses and clovers have made fair growth, and the condition of the cover has been good during April and May each year, but no better than fair at other times because of drought and overgrazing.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas, 1938-47; of grazed grasses and clovers, 1948-55.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.



Riesel, Texas, Watershed SW-17

Notes: #Station discontinued June 30, 1943, to Jan. 1, 1948. \*\*Does not include the part year amounts for 1939 and 1943. Quality of Records: P - good; Q - good 1939-43, excellent 1938-55. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years.

2-56, revised 2-59

RIESEL (WACO), TEXAS Watershed SW-18

LOCATION: Falls Co., Texas; 19 mi. S. E. of Waco; Brazos River Basin.

AREA: 3.04 ac.

SHAPE: Fan, about 420 ft. wide by 460 ft. long.

SLOPES: 72% is in less than 1% class; 28% in 1-3%; average slope 1.14%. Aspect SE.

SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 100%. Poorly defined division between topsoil and subsoil. This soil is noted for the formation of large, extensive shrinkage cracks upon drying.

EROSION: 2 - 100%.

LAND CAPABILITY: I - 60%; II - 40%.

SURFACE DRAINAGE: Good; no well defined drainageways, drainage by rills and poorly defined field gullies; length of principal waterway 460 ft.

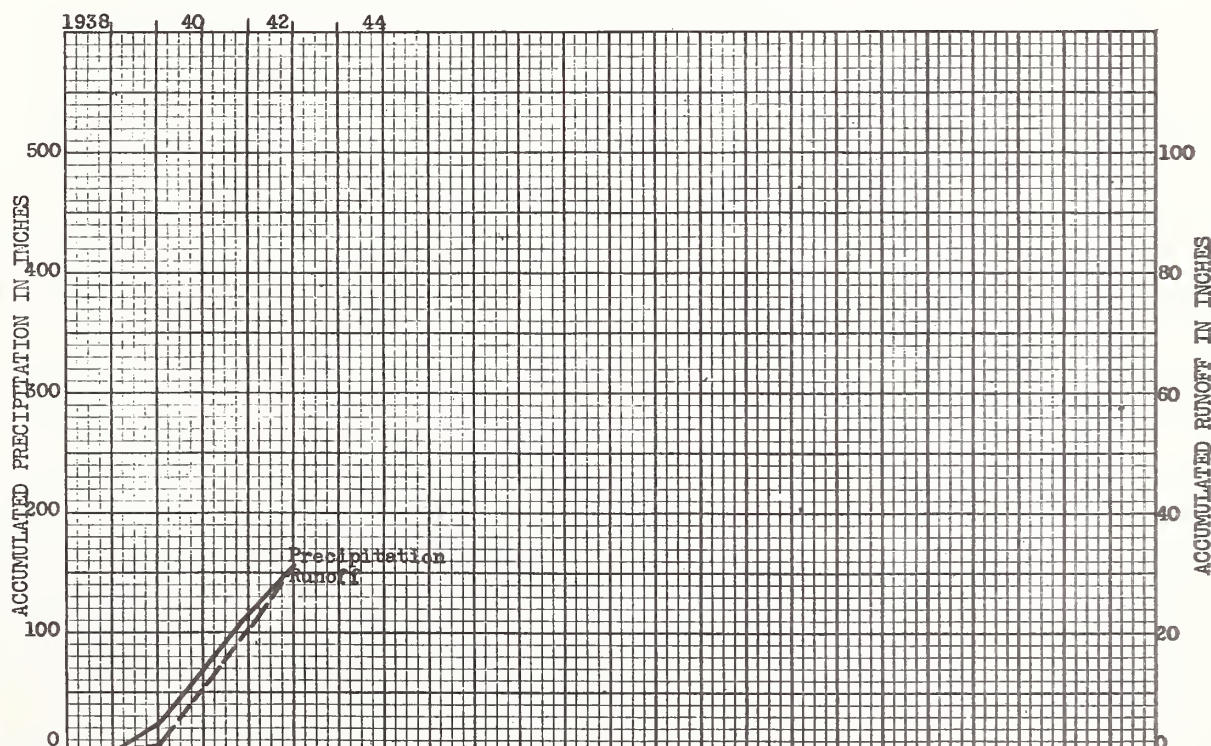
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - type H-3 flume near center of covered concrete gutter 240 ft. long across slope to intercept and concentrate runoff, 6 hr. chart; precipitation - one weighing recording rainage, 6 hr. chart.

WATERSHED CONDITIONS: 100% cultivated to one crop each year, straight rows transverse to the general direction of slope. Crops; corn - 1938, cotton - 1939, and 42, oats - 1940, 41 and 43.

GENERALLY REPRESENTS: Small areas of cultivated land in the Blacklands of Coastal Plains in Texas with various crops but with the entire area in one crop at anytime.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Riesel, Texas, Watershed SW-18

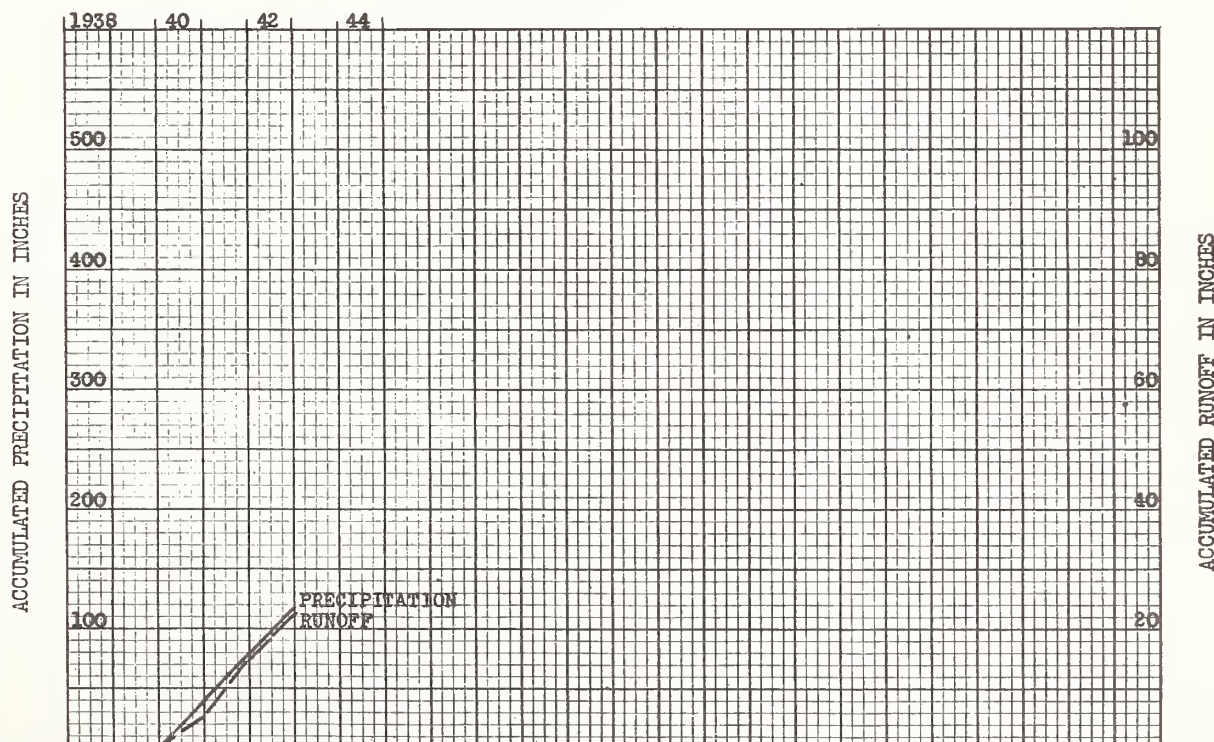
Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P				3.99	2.41	3.16	2.47	0.85	0.85	0.16	0.83	2.76	17.48
Q				.52	0	0	0	0	0	0	0	0	.52
1939 P	4.05	2.91	1.41	.91	4.81	2.66	.38	2.23	.30	1.80	2.31	1.04	24.81
Q	0	0	0	0	.81	0	0	0	0	0	0	0	.81
1940 P	.96	2.89	.57	4.47	2.13	6.47	1.85	2.90	1.26	4.71	10.38	3.89	42.48
Q	0	T	0	.01	T	.06	.42	0	0	1.41	6.39	1.10	9.39
1941 P	3.03	5.68	3.87	4.20	5.18	6.69	3.52	1.21	.97	3.47	2.54	2.49	42.85
Q	1.65	2.74	1.05	.32	.98	3.14	.56	0	0	0	.02	.01	10.47
1942 P	.81	2.08	1.08	6.45	4.70	7.64	.66	.91	8.65	2.52	3.62	3.94	43.06
Q	.01	.09	0	1.40	.54	3.04	0	0	2.36	T	1.18	1.44	10.06
1943 P	.96	.17	2.14	1.24	5.25	2.29	#						12.05
Q	0	0	.08	.12	.02	.41	#						.63
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**Av. P	2.21	3.39	1.73	4.01	4.21	5.87	1.60	1.81	2.80	3.13	4.71	2.84	38.31
**Av. Q	.42	.71	.26	.43	.58	1.56	.25	0	.59	.35	1.90	.64	7.68
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

Notes: # Station discontinued July 22, 1943. \*\*Does not include the part year amounts for 1938 & 1943. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of records: P - good; Q - good.



RIESEL (WACO), TEXAS Watershed 2LOCATION: Falls Co., Texas; 21 mi. S. E. of Waco; Brazos River Basin.AREA: 310 ac.SHAPE: Broad fan, about 5200 ft. wide by 3680 ft. long.SLOPES: 1% is in less than 1% class; 85% in 1-3%; 14% in 3-6%. Aspect E.SOILS: Residual; deep, fine textured, granular, slowly permeable soils, alkaline throughout, slow internal drainage. Houston black clay - 68%; Houston black clay, shallow phase - 31%; Trinity clay - 1%; poorly defined division between topsoil and subsoil. These soils and particularly the Houston black clay are noted for the formation of large, extensive cracks upon drying.EROSION: 2 - 97%; 3 - 2%; 4, 1%.LAND CAPABILITY: I - 1%; II - 85%; III - 14%.SURFACE DRAINAGE: Good; much of drainage by poorly defined field gullies and rills; length of principal waterway 4000 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - current meter station V notched weir for low flows, 6 hr. chart; precipitation - two weighing recording raingages.WATERSHED CONDITIONS: Land use 1939; cultivated 61%, permanent grass 35%, roads 2%, farmsteads 2%. Cultivated land primarily row crops of cotton and corn in straight rows with little attention to conservation practices.GENERALLY REPRESENTS: Areas in the Blacklands of Coastal Plains in Texas on deep, fine textured, slowly permeable soil with more permanent grass than is usual in this area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Texas Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Riesel, Texas, Watershed Z**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q						2.40 T	3.65 0	2.38 0	.28 0	1.80 0	2.20 0	1.14 T	13.85 T
1940 P Q	1.00 0	2.74 0	.56 0	4.23 .01	2.08 T	5.16 T	1.04 0	2.82 0	1.15 0	4.20 .02	10.27 4.45	3.50 .81	38.75 5.29
1941 P Q	2.92 1.75	5.10 2.89	3.52 1.30	3.72 .36	4.92 1.52	6.15 2.23	2.94 .07	1.20 0	.76 0	3.44 0	2.36 0	2.43 0	39.76 10.12
1942 P Q	.76 0	1.74 .01	1.01 T	6.17 .70	4.30 .33	7.30 3.05	.63 0	.47 0	7.62 .83	2.96 T	3.63 .74	3.70 .97	40.29 6.63
1943 P Q	.84 .03	.14 0	2.10 .09	1.24 .04	4.54 T	1.79 .05	# #						10.65 .21
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**Av. P **Av. Q	1.56 .58	3.19 .97	1.70 .43	4.71 .36	3.77 .62	6.30 1.76	1.54 .02	1.50 0	3.18 .28	3.53 .01	5.12 1.73	3.21 .59	39.61 7.35
Normal P	2.38	2.63	2.94	3.97	4.15	3.19	1.94	1.38	2.97	2.41	2.25	2.74	32.95

**Notes:** \*\* Does not include part year amounts for 1939 and 1943. #Station discontinued July 22, 1943. Normal P based on Waco Weather Bureau record computed from several stations in the vicinity of Waco with length of records from 10 to 65 years. Quality of records: P - good; Q - fair.

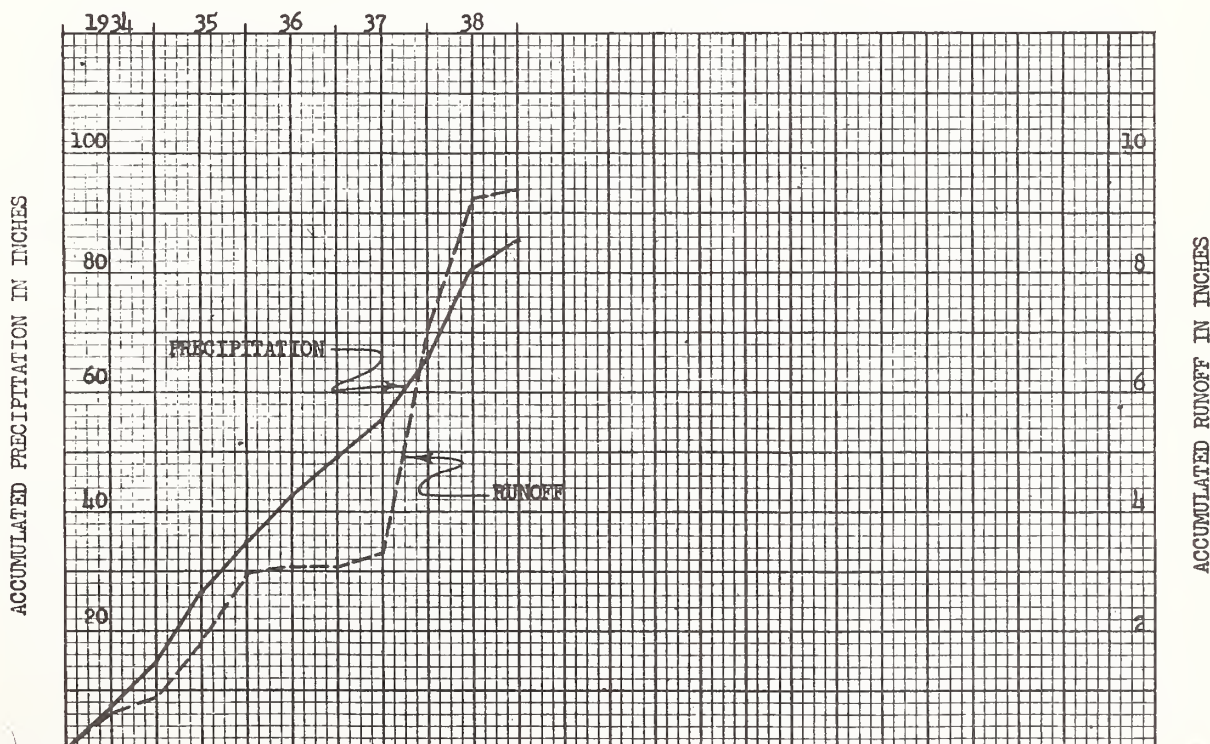
1-56

HAYS, KANSAS Watershed 6LLOCATION: Ellis Co., Kan.; 2 mi. S. of Hays; Big Creek Watershed, Kansas River Basin.AREA: 2.85 ac.SHAPE: Oval leaf; 500 ft. long, 300 ft. wide.SLOPES: 30% is in 2-5% class; 65% in 5-8%; 5% in 8-12%. Aspect NNE.SOILS: Loessial; topsoil - silt loam, granular, 4-8 in. thick; subsoil - moderate permeability; internal drainage - medium. Pfeiffer silt loam.EROSION: 2 - 100%.LAND CAPABILITY: III - 70%; IV - 30%.SURFACE DRAINAGE: Good; channel forks about 100 ft. above flume and each fork drains about half of the area. Length of principal waterway - 550 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 2 ft. sheet metal Parshall flume, Bristol pressure recorder.  
Precipitation - Fergusson recorder gage 2L and U.S.W.B. standard gage.

WATERSHED CONDITIONS: This area was probably farmed for about 30 years prior to being established as a watershed in 1934. From 1934 to 1938 it was cropped continuously to wheat. All farming operations were conducted parallel to the road. Winter wheat was seeded in the fall and harvested when ripe about July 1. The ground was plowed with a one-way disk, or listed, about the middle of July and at least once prior to seeding time. The later operation was followed by subsoil packing in the preparation of a firm seed bed. There was no wheat harvested in 1934, 1935, and 1937; yields in 1936 and 1938 averaged about 15 bu. per ac.

GENERALLY REPRESENTS: Cultivated land in the Central Kansas Shale-Sandstone Hills and Loess Plains.

ACCUMULATED PRECIPITATION AND RUNOFF





**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Hays, Kansas, Watershed 6L

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P Q	0.29 0	1.16 0	0.45 0	0.48 0	1.28 0	4.17 .62	0.41 0	3.08 .29	1.67 0	0.43 0	0.75 0	0.02 0	14.19 .91
1935 P Q	T 0	.28 0	.15 0	.21 0	6.27 * .44	5.04 .50	.05 0	1.59 0	3.99 1.13	.86 0	2.17 0	.20 0	20.81 2.07
1936 P Q	.15 0	.20 0	.11 0	1.02 0	5.25 .08	.39 0	.36 0	1.94 0	1.83 0	2.19 0	T 0	.50 0	13.94 .08
1937 P Q	.94 0	.39 0	.43 0	.38 0	1.39 0	2.77 .24	4.49 1.30	2.70 2.23	1.30 .23	1.42 0	.40 0	.18 0	16.79 4.00
1938 P Q	.06 0	.65 0	1.87 .17	2.00 .06	7.69 1.95	2.36 0	.61 0	2.35 0	1.99 .16	.03 0	.30 0	T 0	19.91 2.34
P													
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Av. P Av. Q	0.29 0	0.54 0	0.60 .03	0.82 .01	4.37 .50	2.95 .27	1.18 .26	2.33 .51	2.16 .30	0.99 0	0.72 0	0.18 0	17.13 1.88
Normal P	.49	.79	.99	2.29	3.37	3.48	3.07	3.00	2.26	1.45	.85	.74	22.78

**Notes:** \* Estimated. Runoff recorder discontinued during winter months except for periods when runoff was expected from melting snow. Normal P based on 80 year record (1867-1947) at Hays, Kansas. Quality of records: fair.

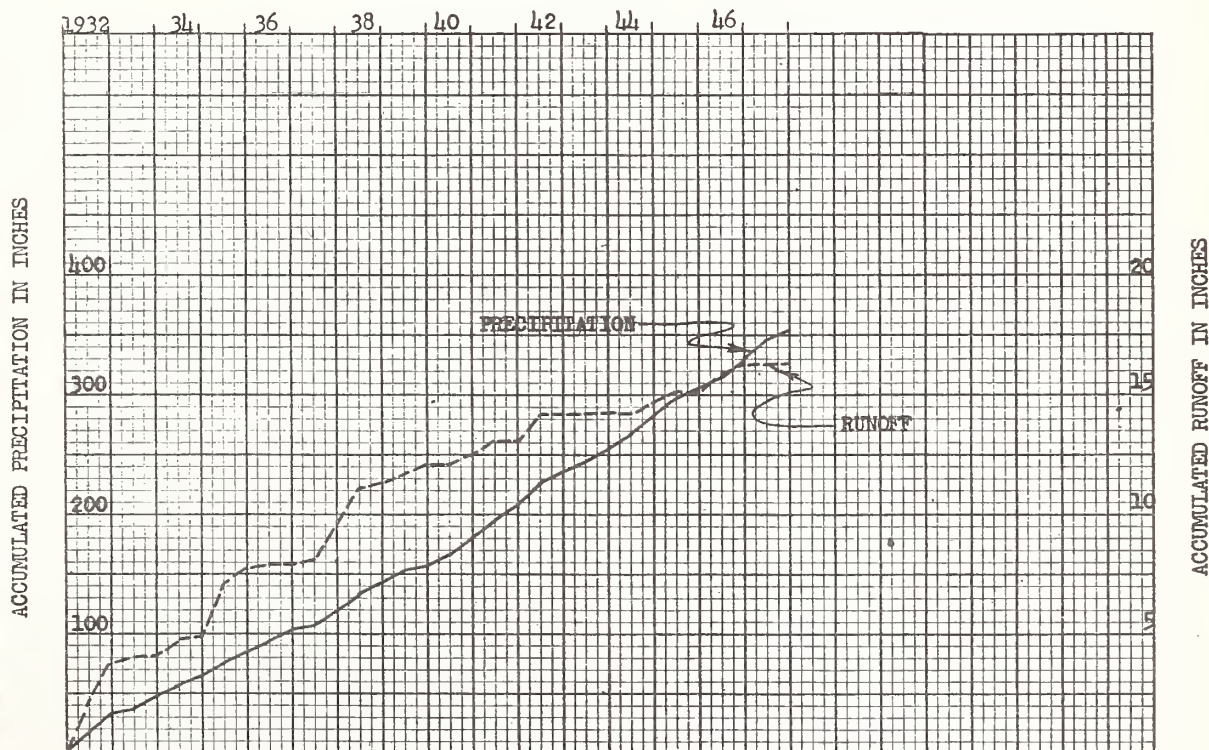
1-56

HAYS, KANSAS

Watershed 1.61 AG

LOCATION: Ellis Co., Kan.; 2 mi. S. of Hays; Big Creek Watershed, Kansas River Basin.AREA: 1.61 ac.SHAPE: Oval, 400 ft. long, 250 ft. wide.SLOPES: 35% is in 2-5% class; 55% in 5-8%; 10% in 8-12%. Aspect NW.SOILS: Loessial; topsoil - silt loam, granular. 10-13 in. thick; subsoil - moderate permeability; internal drainage - medium. Pfeiffer silt loam.EROSION: 1 - 100%.LAND CAPABILITY: III - 30%; IV - 70%.SURFACE DRAINAGE: Good; concave area with uniform slopes, no gullying. Length of principal waterway - 400 ft.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 6 in. sheet metal Parshall flume, Bristol pressure recorder. Precipitation - U.S.W.B. standard gage.WATERSHED CONDITIONS: Virgin sod, native grasses predominately buffalo and gramma. Moderately grazed with cattle during the growing season. Little Barley (*Hordeum puselum*) thrived during the dry years of 1934 to the fall of 1942 when native grasses reestablished themselves. Pasture condition class excellent from fall of 1942 through 1947.GENERALLY REPRESENTS: Native grass land in the Central Kansas Shale-Sandstone Hills and Loess Plains.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and the Kansas State Experiment Station

## MONTHLY PRECIPITATION AND RUNOFF (Inches)

Hays, Kan., Watershed 1.61 AG

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932 P	1.82	0.50	0.82	2.32	3.28	8.57	2.03	5.19	5.14	1.69	0.12	0.18	31.66
Q	0	0	0	0	T	2.39	0	.06	1.29	0	0	0	3.76
1933 P	.07	.21	.33	2.14	2.82	1.07	2.12	2.73	2.03	.03	.54	2.17	16.26
Q	0	0	0	.23	0	0	0	.08	0	0	0	.02	.33
1934 P	.29	1.16	.45	.37	1.55	5.15	.54	3.49	1.77	.52	.75	0.02	16.06
Q	0	0	0	0	0	.70	0	.07	0	0	0	0	.77
1935 P	T	.28	.15	.21	6.27	5.10	.01	1.98	4.52	.98	2.17	.20	21.87
Q	0	0	0	0	.78	1.37	0	0	.72	0	0	0	2.87
1936 P	.15	.20	.11	1.02	5.47	.71	.74	2.15	2.21	2.64	T	.50	15.90
Q	0	0	0	0	.22	0	0	0	0	T	0	0	.22
1937 P	.94	.39	.43	.38	1.49	2.68	4.94	2.82	1.62	1.59	.40	.18	17.86
Q	0	0	0	0	0	.14	.74	.72	0	0	0	0	1.60
1938 P	.06	.65	1.87	2.58	8.21	2.73	1.08	2.47	2.13	.03	.30	T	22.11
Q	0	0	.06	.02	1.43	0	0	.16	.09	0	0	0	1.76
1939 P	.48	1.05	.98	1.65	1.00	4.71	1.04	3.53	.42	.18	.11	.70	15.85
Q	0	0	0	0	0	.41	0	.32	0	0	0	0	.73
1940 P	.72	.35	.83	1.57	2.41	2.36	4.21	3.30	3.14	.62	2.58	.82	22.91
Q	0	0	0	0	0	0	.42	0	0	0	0	0	.42
1941 P	1.08	.85	.58	4.61	2.86	6.40	.63	4.14	3.02	2.35	.54	1.07	28.13
Q	0	0	0	0	0	.63	0	0	0	0	0	0	.63
1942 P	.12	1.02	1.83	4.74	4.92	7.04	2.90	2.88	.94	1.91	.09	1.22	29.61
Q	0	0	0	0	.74	.43	0	0	0	0	0	0	1.17
1943 P	.09	.79	.75	1.45	2.52	1.01	2.83	2.69	2.32	.68	.36	.70	16.19
Q	0	0	0	0	0	0	0	0	.03	0	0	0	.03
1944 P	1.07	1.72	2.06	4.71	2.77	1.08	6.78	5.43	.44	1.33	1.38	.93	29.70
Q	0	0	0	0	0	0	.33	.08	0	0	0	0	.41
1945 P	.68	.67	.08	3.63	3.78	5.29	1.67	1.69	1.40	.36	.02	1.07	20.34
Q	0	0	0	0	.05	.27	0	0	0	0	0	0	.32
1946 P	.35	.29	1.48	1.03	6.47	1.05	2.18	1.73	4.92	3.98	2.95	.05	26.48
Q	0	0	0	0	.89	0	0	0	.43	0	0	0	1.32
1947 P	.44	.07	1.15	2.22	5.31	6.98	.87	2.06	.08	.55	1.40	1.52	22.65
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
P													
Q													
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Av. P	.52	.64	.87	2.16	3.82	3.87	2.16	3.02	2.26	1.21	.86	.71	22.10
Av. Q	0	0	T	.02	.26	.40	.09	.09	.16	0	0	T	1.02
Normal P	.49	.79	.99	2.29	3.37	3.48	3.07	3.00	2.26	1.45	.85	.74	22.78

Notes: Runoff recorder discontinued during winter months except for periods when runoff was expected from melting snow. Normal P based on 81 year record (1867-1947) at Hays, Kansas. Quality of records: fair.



**LOCATION:** Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

**AREA:** 481 ac.

**SHAPE:** Roughly rectangular,  $3\frac{1}{4}$  mi. wide,  $1\frac{1}{4}$  mi. long.

**SLOPES:** 26% is in 0-2% class; 28% in 2-5%; 21% in 5-8%; 15% in 8-12%; 10% over 12%. Aspect SE.

**SOILS:** Loessial; topsoil - 86% silt loam texture, medium to fine crumb structure, 14% silty clay loam texture, medium to fine granular structure; 24% is 0-5 in. thick, 61% is 5-8 in. thick and 15% is over 8 in. thick. Permeability of subsoil - 58% is moderately slow, 31% is moderate and 11% is slow. Internal drainage - medium. Hastings and other related soils - 75%; Colby and other related soils - 15%; Judson - 10%.

**EROSION:** 1 - 15%; 2 - 61%; 3 - 24%.

**LAND CAPABILITY:** II - 26%; III - 44%; IV - 10%; VI - 20%.

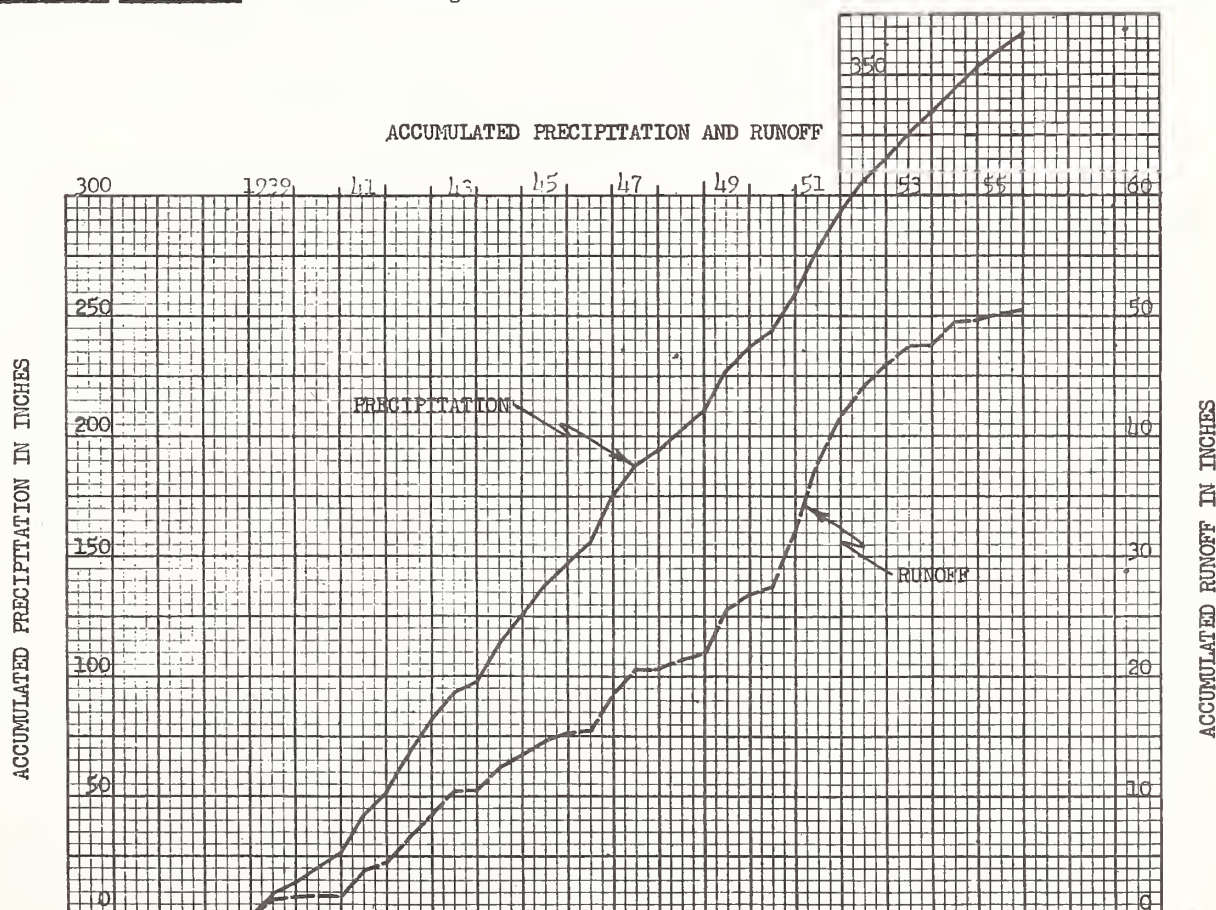
**SURFACE DRAINAGE:** Good; length of principal waterway - 1.69 mi. A natural watershed with arterial flow to a central drainageway. The channel meanders for about  $\frac{1}{2}$  mi. above gage, thus impounding some water.

**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 30" broadcrested concrete weir with 3:1 side slopes, 2.5 ft. deep; regular and submergence gages were equipped with Friez FW - 1 recorders. Precipitation - measured in recording gages.

**WATERSHED CONDITIONS:** Mixed cover watershed with about 18% in native grass, 79% in cultivation and 3% in farmsteads and roads. Cultivated land was generally farmed in straight rows with a common crop rotation of corn, oats and wheat. All crops were poor in 1940, 1953 and 1955; small grains were poor in 1944, 1949 and 1950; oats were generally poor in 1945, '48, '51, '52, '54; wheat was poor in 1948, 1951, 1954; corn was poor in 1947. Other years the crops were fair to excellent.

**GENERALLY REPRESENTS:** General farming areas in Central Nebraska - Kansas Loess Plains.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska, Watershed W-3**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q								1.90 .18	1.94 .17	0.10 0	0.23 0	0 0	4.17 .35
1939 P Q	0.28 0	0.15 0	0.56 .18	2.38 .10	1.84 .02	4.77 1.15	1.32 .03	2.17 .08	.03 0	.41 0	0 0	.20 0	14.11 1.56
1940 P Q	.25 0	.44 0	.52 .02	1.04 0	2.35 .10	1.33 .08	.35 0	1.57 .01	1.47 .02	1.15 0	1.41 0	.46 0	12.34 .23
1941 P Q	.39 .01	.39 .05	.20 .17	3.38 .08	1.84 .05	8.12 *1.84	1.44 0	2.60 .04	2.44 .01	2.74 .26	.92 .08	.63 0	25.09 2.59
1942 P Q	.05 .07	.56 0	1.79 .10	3.66 .16	2.63 .02	8.05 1.90	1.77 .02	4.57 .61	6.45 1.12	.33 0	.10 0	*1.09 0	31.05 4.00
1943 P Q	0 .03	.68 *.40	.15 .01	2.48 .12	1.74 .02	5.90 1.43	2.31 *.08	1.38 0	.06 0	.58 0	.10 0	.14 0	15.52 2.09
1944 P Q	.88 0	.17 0	1.05 0	4.59 .30	5.59 1.33	3.70 .27	1.81 0	7.64 1.15	.67 T	.77 T	1.55 0	.05 0	28.47 3.05
1945 P Q	.32 0	.41 0	.54 0	3.17 .04	3.95 .38	3.71 .80	3.76 .41	1.21 T	2.73 T	.34 0	.04 0	.99 0	21.17 1.63
1946 P Q	.51 *.10	T 0	1.56 0	.22 0	2.84 0	2.85 .05	3.59 .18	3.95 .35	5.94 1.36	4.13 .69	2.01 .53	.02 0	27.62 3.26
1947 P Q	.41 0	.16 0	.62 0	3.77 .37	2.67 .13	5.59 1.64	1.65 .14	1.07 0	.34 Q	.41 0	1.26 0	1.09 0	19.04 2.28
1948 P Q	.09 0	1.12 0	.45 *.15	.49 0	1.70 0	3.98 .37	4.15 .76	.88 0	1.07 T	.72 0	1.16 0	.33 0	16.11 1.28
1949 P Q	.86 0	.45 0	1.64 .04	1.98 T	5.72 1.79	6.59 1.89	3.55 .56	1.02 0	1.75 0	3.04 .74	0 0	.16 0	26.76 5.02
1950 P Q	.03 0	.51 0	.27 0	.68 0	3.80 .15	1.95 .17	5.23 1.31	2.24 .02	5.20 2.84	1.32 .59	.52 0	0 0	21.75 5.08
1951 P Q	.36 0	1.61 .24	1.15 .04	3.16 .12	3.57 .46	9.66 4.73	6.05 3.33	3.45 .17	3.33 .54	1.87 .03	.51 0	.11 0	34.83 9.66
1952 P Q	.22 .01	.56 0	1.55 .65	2.56 .14	2.96 .46	4.54 1.08	5.61 2.00	1.21 0	.41 0	0 0	.74 0	.93 0	21.29 4.34
1953 P Q	.12 0	.74 0	1.03 0	2.07 T	3.16 .49	3.10 .88	1.45 0	1.53 T	1.40 0	.69 0	2.45 .05	1.24 .09	18.98 1.51
1954 P Q	.04 0	*.30 0	.24 0	1.70 .02	6.10 1.86	1.09 0	1.04 0	3.96 .07	1.51 *.02	1.78 .03	.01 0	.51 0	18.28 2.00
1955 P Q	.37 0	.34 0	.23 0	.86 0	2.69 .09	3.72 .40	.91 0	.56 0	4.66 .56	.17 0	0 0	.28 0	14.79 1.05
P Q													
P Q													
** Av. P ** Av. Q	.30 .01	.51 .04	.80 .08	2.25 .09	3.24 .43	4.63 1.10	2.71 .52	2.41 .15	2.32 .38	1.20 .14	.75 .04	.48 .01	21.60 2.99
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1938. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt.



**LOCATION:** Webster Co., Nebr., 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

**AREA:** 411 ac.

**SHAPE:** Roughly triangular, 1 mi. base,  $1\frac{1}{4}$  mi. alt.

**SLOPES:** 14% is in 0-2% class; 25% in 2-5%; 43% in 5-8%; 9% in 8-12%; 9% over 12%. Aspect S.

**SOILS:** Loessial. Topsoil: texture - 90% silt loam, 9% silty clay loam, 1% silt loam and silty clay loam complex; structure - 91% medium to fine crumb, 9% medium to fine granular; 20% is 0-5 in. thick, 62% is 5-8 in. thick and 18% is over 8 in. thick. Permeability of subsoil - 77% is moderately slow and 23% is moderate. Internal drainage - medium. Hastings and other related soils - 75%; Colby and **EROSION:** 1 - 18%; 2 - 62%; 3 - 20%. / other related soils - 18%; Judson - 7%.

**LAND CAPABILITY:** II - 14%; III - 60%; IV - 17%; VI - 9%.

**SURFACE DRAINAGE:** Good; length of principal waterway - 1.43 mi. A natural watershed with arterial flow to a central drainageway. Small stockwater pond, with 3.5 ac. ft. maximum storage on upper tributary. Main channel does not meander above gage.

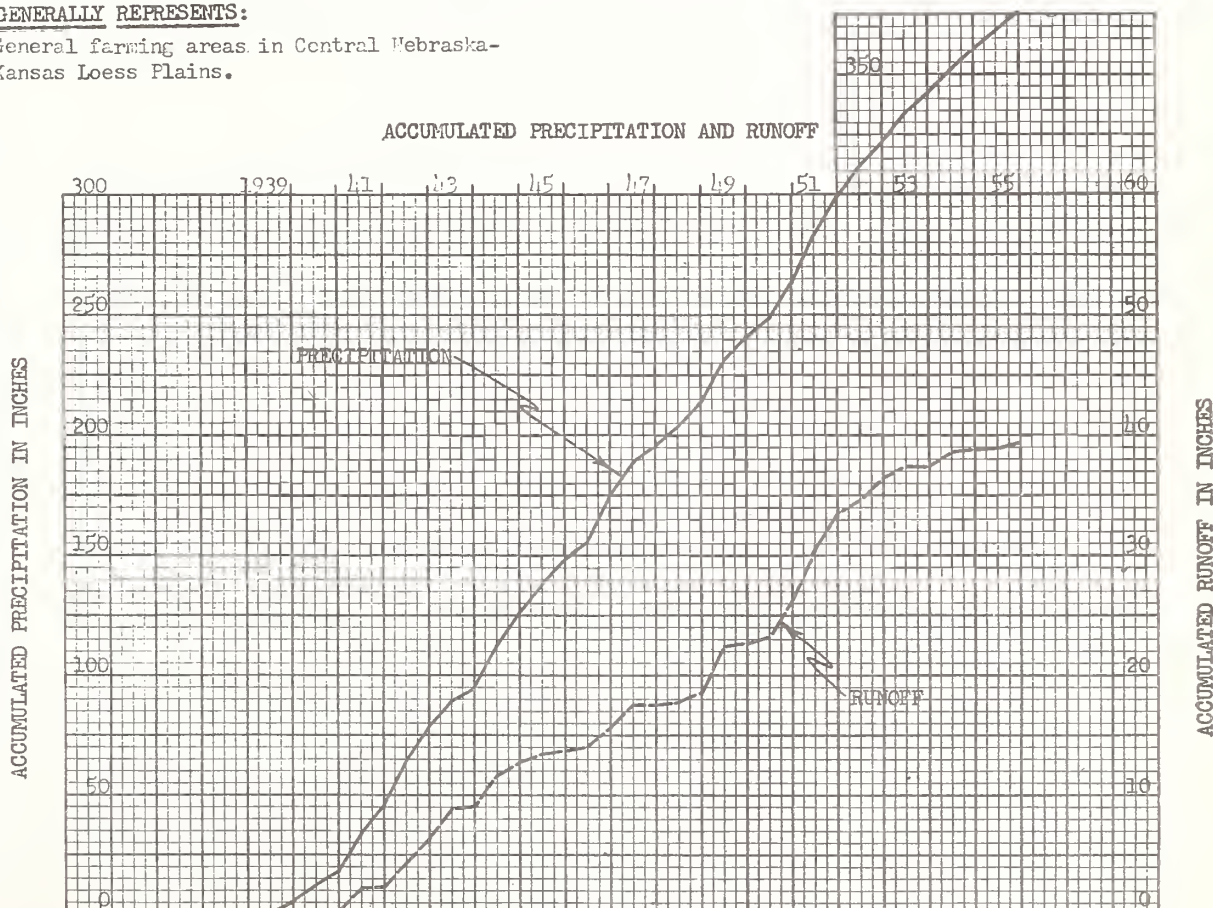
**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 30" broadcrested concrete weir with 3:1 side slopes, 3.0 ft. deep; regular and submergence gages were equipped with Friez FW-1 recorders. Precipitation - measured in recording gages.

**WATERSHED CONDITIONS:** Mixed cover watershed with about 17% in native grass, 80% in cultivation and 3% in farmsteads and roads. Prior to the spring of 1947 the cultivated land was generally farmed in straight rows with a common crop rotation of corn, oats and wheat. Beginning in the spring of 1947 a conservation program was initiated through the cooperation of 6 of the 7 farmers owning land in the watershed. By the fall of 1950, 65% of all the planned terraces were completed, grassed waterways were established, legumes were increased from 1% to about 12% and grassland was increased to about 32% of the area. By the end of 1955 practically all the planned terraces were completed except those on the 43 acres of cultivated land owned by the non-cooperator. From 1947 to 1955 practically all the land owned by the cooperators was farmed on the contour. All crops were poor in 1940, 1953 and 1955; small grains were poor in 1944, 1949 and 1950; oats were generally poor in 1945, '48, '51, '52, '54; wheat was poor in 1948, 1951, 1954; corn was poor in 1947. Other years the crops were fair to excellent. From '47 to '55 average yields on this watershed were better than areas which were straight row farmed.

**GENERALLY REPRESENTS:**

General farming areas in Central Nebraska-Kansas Loess Plains.





**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Hastings, Nebraska, Watershed W-5

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q							1.72 .04	2.48 .06	0.08 0	0.42 0	0 0	0.44 0	5.14 .10
1940 P Q	0.43 0	0.55 0	0.72 0	1.41 0	1.87 0	1.62 .02	.32 0	1.13 0	1.41 0	1.15 0	1.87 0	.69 0	13.17 .02
1941 P Q	.61 T	.60 0	.36 .10	3.83 .17	2.21 .07	8.88 1.71	1.29 0	2.85 T	2.41 0	2.18 T	.88 T	1.28 0	27.38 2.05
1942 P Q	.05 T	.65 0	1.77 .01	3.58 .02	2.95 .01	8.32 2.25	2.55 .32	4.39 .62	6.58 .93	.40 0	.28 0	1.24 0	32.76 4.16
1943 P Q	0 T	.76 * .35	.20 0	2.81 .28	1.51 T	5.83 2.03	2.24 .03	1.30 0	.09 0	1.25 .02	.10 0	.15 0	16.24 2.71
1944 P Q	.93 0	.22 0	1.78 .01	5.47 .20	5.99 *1.91	3.21 .30	1.86 0	7.82 1.31	1.12 .05	.96 T	1.74 T	.16 T	31.26 3.78
1945 P Q	.46 T	.70 T	.52 T	3.27 .04	3.86 .15	3.48 .41	3.42 .41	1.57 T	3.14 .03	.32 0	.03 0	1.29 T	22.06 1.04
1946 P Q	.54 * .10	T 0	1.86 0	.20 0	2.68 T	2.63 .04	3.89 .17	3.84 .36	5.07 .63	3.93 .30	2.14 .26	.02 0	26.80 1.86
1947 P Q	.40 0	.26 0	.63 0	3.90 .38	3.07 .12	5.88 1.31	1.47 .06	1.30 0	.36 0	.53 0	1.38 0	1.40 0	20.58 1.87
1948 P Q	.09 0	1.21 0	.57 * .10	.52 0	1.80 0	3.84 .11	4.99 .89	.97 0	1.17 .01	.70 0	1.22 T	.46 0	17.54 1.11
1949 P Q	1.05 0	.64 0	1.92 .03	2.21 .01	5.69 1.60	6.89 1.99	3.26 .14	1.09 0	1.79 T	2.95 .30	0 0	.17 0	27.66 4.07
1950 P Q	.03 0	.55 0	.27 0	.68 0	4.56 .26	2.09 .15	5.89 1.27	2.10 T	4.68 1.67	1.36 .22	.56 0	0 0	22.77 3.57
1951 P Q	.42 0	1.69 .11	1.19 T	3.07 * .01	3.67 * .28	10.50 3.81	6.13 2.55	3.35 .06	3.53 .28	1.83 .03	.50 0	.13 0	36.01 7.13
1952 P Q	.21 T	.62 0	1.65 .16	2.75 .07	2.73 .11	4.66 .76	6.07 1.79	1.58 .01	.44 0	0 0	.92 0	1.16 0	22.79 2.90
1953 P Q	.16 0	.93 0	1.06 0	2.10 T	3.02 .11	3.19 .80	1.32 0	1.87 .01	1.39 T	.67 0	2.54 .04	1.22 .03	19.47 .99
1954 P Q	.04 0	.27 0	.26 0	1.56 0	6.65 1.41	1.41 0	.87 0	3.85 .01	1.63 .01	1.90 .02	.01 0	.46 0	18.91 1.45
1955 P Q	.36 0	.27 0	.22 0	.51 0	2.86 .01	3.80 .13	.62 0	.68 0	4.84 .41	.18 0	0 0	.34 0	14.68 .55
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	.36 .01	.62 .03	.94 .03	2.37 .07	3.44 .38	4.76 .99	2.89 .48	2.48 .15	2.48 .25	1.27 .06	.89 .02	.64 T	23.14 2.47
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt.

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 2,086 ac. (3.26 sq.mi.) SHAPE: Roughly rectangular,  $1\frac{1}{4}$  mi. wide,  $3\frac{1}{4}$  mi. long.

SLOPES: 20% is in 0-2% class; 24% in 2-5%; 36% in 5-8%; 14% in 8-12%; 6% over 12%. Aspect S.

SOILS: Loessial. Topsoil: texture - 86% silt loam, 11% silty clay loam, 3% silt loam and silty clay loam complex; structure - 89% medium to fine crumb, 11% medium to fine granular; 22% is 0-5 in. thick, 58% is 5-8 in. thick and 20% is over 8 in. thick. Permeability of subsoil - 56% is moderately slow, 41% is moderate and 3% is slow. Internal drainage - medium. Hastings and other related soils - 69%; Colby and other related soils - 17%; Judson - 14%.

LAND CAPABILITY: II - 20%; III - 51%; IV - 14%; VI - 15%.

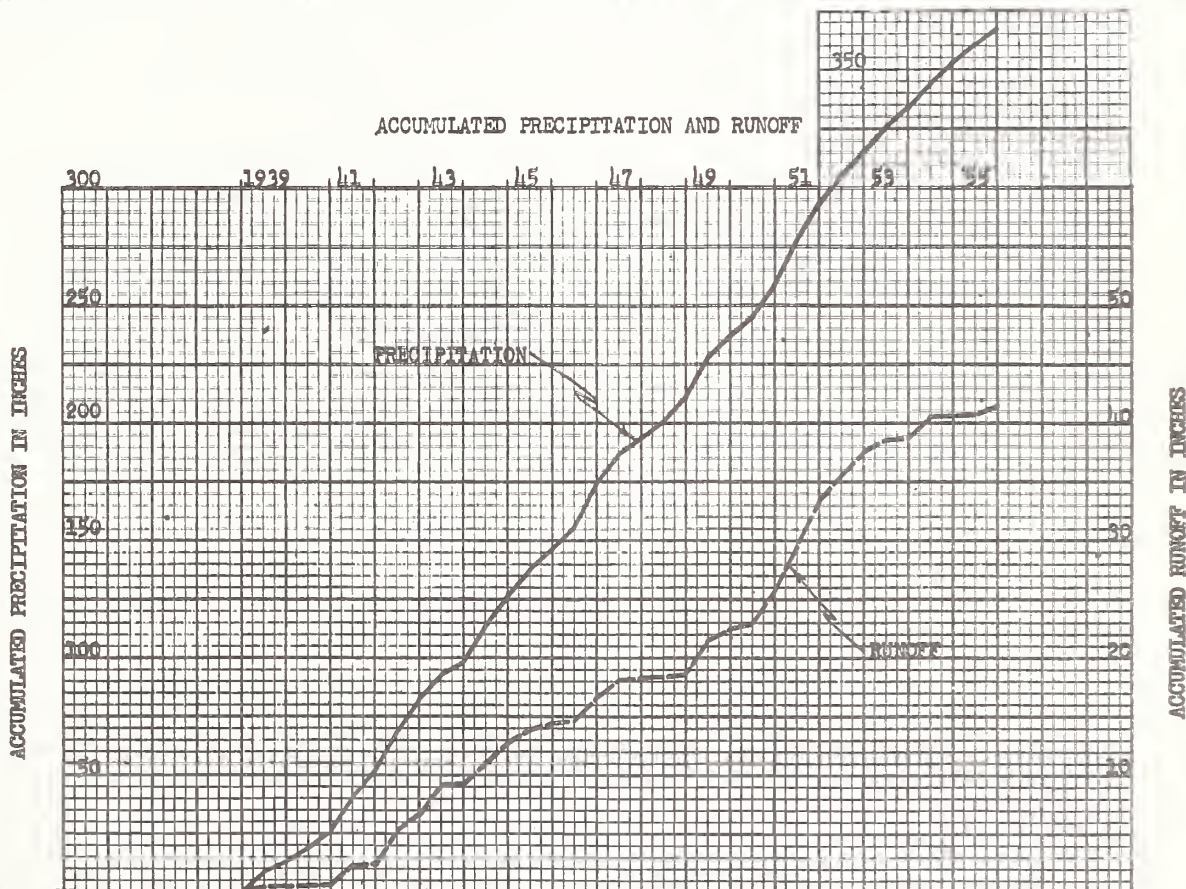
SURFACE DRAINAGE: Good; length of principal waterway 4.94 mi. A natural watershed with arterial flow to a central drainageway. Channel meanders for about  $3\frac{1}{2}$  mi. above gage, thus impounding some water. Several small stockwater ponds in the watershed impound relatively little of the flow.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broadcrested concrete weir with 3:1 side slopes, 3.0 ft. deep; regular, submergence and slope gages were equipped with Friez FW-1 recorders. Precipitation - measured in recording gages.

WATERSHED CONDITIONS: Mixed cover watershed with about 23% in native grass, 74% in cultivation and 3% in farmsteads and roads. Cultivated land was generally farmed in straight-rows with a common rotation of corn, oats and wheat. All crops were poor in 1940, 1953 and 1955; small grains were poor in 1944, 1949, and 1950; oats were generally poor in 1945, '48, '51, '52, '54; wheat was poor in 1948, 1951, 1954; corn was poor in 1947. Other years the crops were fair to excellent.

GENERALLY REPRESENTS: General farming areas in Central Nebraska - Kansas Loess Plains.



Cooperative research of the USDA and the Nebraska Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska Watershed W-8**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	0.29 0	0.23 0	0.67 .12	2.42 .11	1.80 .01	3.82 .27	1.46 .01	2.10 T	0.02 0	0.42 0	0 0	0.21 0	13.44 .52
1940 P Q	.41 0	.55 0	.52 0	1.18 0	2.06 0	1.46 .04	.30 0	1.16 0	1.38 0	1.09 0	1.58 0	.49 0	12.18 .04
1941 P Q	.42 0	.44 0	.25 .05	3.48 .05	1.98 .02	8.19 1.69	1.39 0	2.80 0	2.48 0	2.45 .03	.87 .02	.77 0	25.52 1.86
1942 P Q	.08 .02	.56 0	1.80 .03	3.63 T	2.77 .02	8.57 2.74	2.06 .01	4.44 .64	6.08 1.07	.38 0	.14 0	1.13 0	31.64 4.53
1943 P Q	0 .02	.73 * .38	.15 T	2.55 .13	1.55 T	6.02 *1.66	2.18 .02	1.34 0	.07 0	.80 T	.10 0	.13 0	15.62 2.21
1944 P Q	.87 0	.22 0	.99 T	4.50 .20	5.65 1.25	3.44 .46	1.71 T	7.56 1.65	.94 .12	.85 .01	1.61 T	.07 T	28.41 3.69
1945 P Q	.37 0	.51 T	.66 0	2.98 .01	3.65 .28	3.39 .76	3.74 .63	1.32 0	2.68 T	.32 0	.03 0	.99 T	20.64 1.68
1946 P Q	.53 * .08	T 0	1.68 0	.20 0	2.82 0	2.89 .04	3.87 .16	3.87 .30	5.48 .93	4.01 .43	1.98 .33	.01 0	27.34 2.27
1947 P Q	.41 0	.14 0	.56 0	3.65 .28	2.77 .04	5.45 .91	1.73 .08	1.29 0	.32 0	.44 0	1.28 0	1.09 0	19.13 1.31
1948 P Q	.10 0	1.06 0	.47 * .13	.51 0	1.65 0	3.78 .14	4.55 .50	1.06 0	1.06 0	.72 0	1.18 0	.37 0	16.51 .77
1949 P Q	.88 0	.50 0	1.68 .02	1.96 0	5.60 1.04	7.01 1.71	3.50 .43	1.01 0	1.72 0	3.07 .60	0 0	.16 0	27.09 3.80
1950 P Q	.01 0	.50 0	.38 0	.63 0	4.19 .16	1.89 .16	5.34 1.01	2.13 0	4.74 1.42	1.33 .50	.53 0	0 0	21.67 3.25
1951 P Q	.37 0	1.61 .08	1.15 .01	3.01 .05	3.40 .21	9.96 3.44	6.24 2.85	3.38 .10	3.44 .61	1.81 .03	.51 0	.11 0	34.99 7.38
1952 P Q	.24 T	.54 0	1.64 * .56	2.68 .12	2.86 .30	4.64 1.30	5.78 1.83	1.24 0	.44 0	0 0	.82 0	.89 0	21.77 4.11
1953 P Q	.11 0	.75 0	.99 0	1.84 0	2.97 .42	3.17 .86	1.20 T	1.67 0	1.44 0	.74 0	2.56 .02	1.19 .06	18.63 1.36
1954 P Q	.04 0	.28 0	.27 0	1.59 0	6.41 1.73	1.28 0	.91 0	3.82 .01	1.54 T	1.78 .02	.01 0	.47 0	18.40 1.76
1955 P Q	.36 0	.41 0	.21 0	.79 0	2.46 .01	3.71 .26	.79 0	.64 0	4.99 .68	.16 0	0 0	.29 0	14.81 .95
P Q													
P Q													
P Q													
Av. P Av. Q	.32 .01	.53 .03	.83 .05	2.21 .06	3.21 .32	4.63 .97	2.75 .44	2.40 .16	2.28 .28	1.20 .10	.78 .02	.49 T	21.63 2.44
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent; Q - fair.



LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 3,490 ac. (5.45 sq. mi.) SHAPE: Roughly rectangular,  $1\frac{1}{4}$  mi. wide,  $5\frac{1}{4}$  mi. long.

SLOPES: 20% is in 0-2% class; 31% in 2-5%; 34% in 5-8%; 10% in 8-12%; 5% over 12%. Aspect S.

SOILS: Loessial. Topsoil: texture - 91% silt loam, 7% silty clay loam, 2% silt loam and silty clay loam complex; structure - 93% medium to fine crumb, 7% medium to fine granular; 17% is 0-5 in. thick, 60% is 5-8 in. thick and 23% is over 8 in. thick. Permeability of subsoil - 62% is moderately slow, 36% is moderate and 2% is slow. Internal drainage - medium. Hastings and other related soils - 72%; Erosion: 1 - 23%; 2 - 60%; 3 - 17%. Colby and other related soils - 13%; Judson - 15%.

LAND CAPABILITY: II - 20%; III - 57%; IV - 11%; VI - 12%.

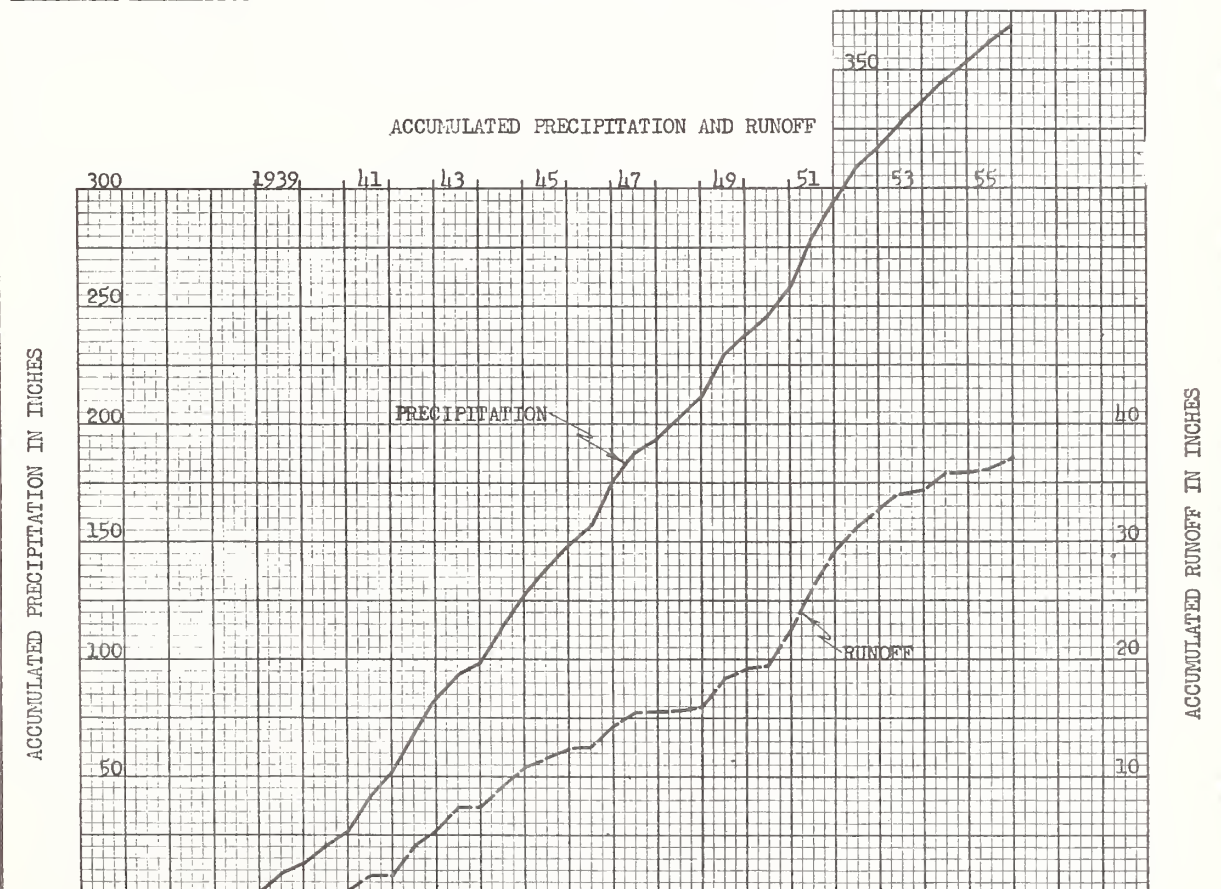
SURFACE DRAINAGE: Good; length of principal waterway - 7.25 mi. A natural watershed with arterial flow to a central drainageway. Channel meanders for about  $5\frac{1}{2}$  mi. above gage, thus impounding some water. Several small stockwater ponds in the watershed impound relatively little of the flow.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broadcrested concrete weir with 3:1 side slopes, 4.5 ft. deep; regular, submergence and slope gages were equipped with Friez FW-1 recorders. Precipitation - measured in recording gages.

WATERSHED CONDITIONS: Mixed cover watershed with about 23% in native grass, 74% in cultivation and 3% in farmsteads and roads. Cultivated land was generally farmed in straight rows with a common rotation of corn, oats and wheat. Since 1950 about 100 acres of cultivated land in the lower end of the watershed was terraced and for the period 1950 to 1955 was farmed on the contour. All crops were poor in 1940, 1953 and 1955; small grains were poor in 1944, 1949 and 1950; oats were generally poor in 1945, '48, '51, '52, '54; wheat was poor in 1948, 1951, 1954; corn was poor in 1947. Other years the crops were fair to excellent.

GENERALLY REPRESENTS: General Farming areas in Central Nebraska - Kansas Loess Plains.



Cooperative research of the USDA and the Nebraska Agricultural Experiment Station

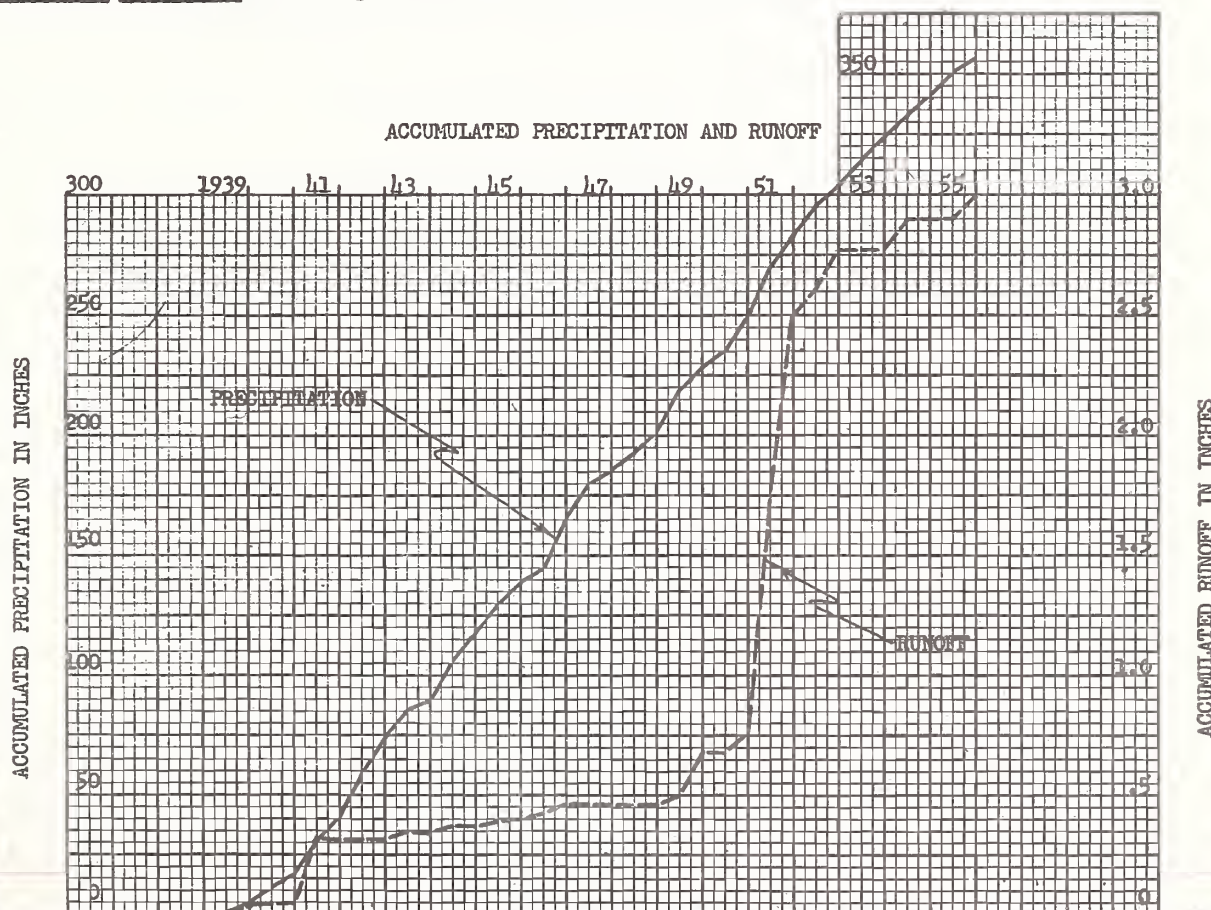
**MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska Watershed W-11**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P	0.27	0.28	0.77	2.58	1.84	3.57	1.53	2.05	0.02	0.43	0	0.28	13.62
Q	0	0	0	0	.02	.12	.01	T	0	0	0	0	.15
1940 P	.49	.70	.56	1.31	2.00	1.57	.32	1.04	1.34	1.04	1.69	.51	12.57
Q	0	0	T	0	T	.02	0	0	0	0	0	0	.02
1941 P	.44	.49	.25	3.50	2.02	8.31	1.46	2.72	2.54	2.24	.88	.90	25.75
Q	0	0	.08	.04	.04	1.41	.01	.02	T	.01	.01	T	1.62
1942 P	.09	.59	1.76	3.64	2.88	8.39	1.95	4.19	5.68	.41	.17	1.16	30.91
Q	.01	0	.01	.05	.03	2.31	T	.44	.81	0	0	0	3.66
1943 P	0	.75	.17	2.66	1.46	5.95	2.03	1.30	.07	.99	.11	.13	15.62
Q	.03	.25	T	.13	T	1.58	T	0	0	T	0	0	1.99
1944 P	.89	.27	1.08	4.47	5.38	3.17	1.91	8.14	1.00	.97	1.65	.08	29.01
Q	T	T	T	.19	1.20	.26	.02	1.74	.08	.01	T	T	3.50
1945 P	.37	.58	.72	2.95	3.70	3.35	3.82	1.31	2.64	.31	.03	1.02	20.80
Q	T	T	T	T	.24	.60	.67	0	T	0	0	T	1.51
1946 P	.53	T	1.75	.19	2.94	2.94	3.99	3.47	5.34	3.82	2.00	.01	26.98
Q	* .07	0	0	0	T	.05	.19	.20	.83	.27	.22	0	1.83
1947 P	.41	.15	.61	3.61	2.78	5.46	1.83	1.45	.30	.44	1.30	1.16	19.50
Q	0	0	T	.33	.04	.75	.10	0	0	0	0	0	1.22
1948 P	.10	1.06	.53	.54	1.66	3.93	4.38	1.07	1.10	.72	1.22	.43	16.74
Q	0	0	* .11	0	0	.16	.33	0	0	0	0	0	.60
1949 P	.90	.54	1.74	1.93	5.34	7.21	3.01	.99	1.72	3.02	0	.16	26.56
Q	0	0	.03	0	.84	1.60	.25	0	0	.54	0	0	3.26
1950 P	.02	.56	.35	.64	4.34	1.69	5.69	2.08	4.53	1.33	.54	0	21.77
Q	0	0	0	0	.21	.09	1.10	0	1.37	.45	0	0	3.22
1951 P	.37	1.63	1.14	2.97	3.37	10.27	6.64	3.29	3.50	1.82	.53	.11	35.64
Q	0	.07	0	.06	.26	3.04	2.63	.09	.46	.03	0	0	6.64
1952 P	.23	.55	1.68	2.82	2.86	4.60	5.76	1.42	.42	0	.87	.97	22.18
Q	0	0	* .49	.14	.34	1.18	1.59	0	0	0	0	0	3.74
1953 P	.11	.73	1.01	1.77	2.85	3.28	1.13	1.62	1.42	1.10	2.55	1.17	18.74
Q	0	0	0	0	.36	.85	0	0	0	.13	.04	.05	1.43
1954 P	.04	.30	.27	1.51	6.35	1.37	.93	3.70	1.56	1.77	.01	.46	18.27
Q	0	0	0	0	1.55	0	T	.02	.02	.02	0	0	1.61
1955 P	.39	.44	.21	.69	2.37	3.60	.85	.62	5.18	.16	0	.28	14.79
Q	0	0	0	0	.01	.18	0	0	.90	0	0	0	1.09
P													
Q													
P													
Q													
P													
Q													
Av. P	.33	.57	.86	2.22	3.18	4.63	2.78	2.38	2.26	1.21	.80	.52	21.74
Av. Q	.01	.02	.04	.06	.30	.84	.41	.15	.26	.09	.02	T	2.20
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent; Q - fair.



4-56

HASTINGS, NEBRASKA Watershed 1-HLOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Little Blue River Watershed; Kansas River Basin.AREA: 3.62 ac.SHAPE: Roughly a parallelogram, 70° angle, 350 ft. wide, 480 ft. long.SLOPES: 4% is in 0-2% class; 12% in 2-5%; 43% in 5-8%; 37% in 8-12%; 4% over 12%. Aspect E.SOILS: Loessial; topsoil - silt loam texture, medium to fine crumb structure, 47% is 8-12 in. thick and 53% is 5-8 in. thick; subsoil - moderately slow permeability; internal drainage - medium. Hastings silt loam.EROSION: 1 - 47%; 2 - 53%.LAND CAPABILITY: II - 4%; III - 55%; IV - 37%; VI - 4%.SURFACE DRAINAGE: Good; length of principal waterway - 440 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Native grass meadow, consisting mostly of blue grama and side-oat grama; 1939-1940 - grass was poor due to drought; 1941 - fair; 1942 to 1955 - very good to excellent.GENERALLY REPRESENTS: Native grass meadow in Central Nebraska - Kansas Loess Plains.

Cooperative Research Project of USDA and Nebraska Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska, Watershed 1-H**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q			0.91 0	2.37 0	1.86 T	4.57 .02	1.34 0	2.39 .05	0.04 0	0.39 0	0 0	0.21 0	14.08 .07
1940 P Q	0.22 0	0.51 0	.58 0	1.07 0	2.59 T	1.34 T	.33 0	1.48 0	1.37 0	1.01 0	1.40 0	.42 0	12.32 T
1941 P Q	.39 .04	.41 0	.22 .22	3.56 0	2.01 0	8.46 .01	1.39 0	2.79 0	2.51 0	2.62 0	.87 0	.59 0	25.82 .27
1942 P Q	.03 0	.53 0	1.74 T	3.55 0	2.67 0	8.35 T	2.10 T	4.62 T	6.58 T	.36 0	.10 0	1.02 0	31.65 T
1943 P Q	0 0	.74 .01	.12 T	2.43 T	1.69 0	6.04 .02	2.32 0	1.43 0	.04 0	.74 0	.10 0	.17 0	15.82 .03
1944 P Q	.89 0	.18 T	1.22 .01	4.65 .01	5.61 T	3.50 T	1.67 0	7.69 T	.78 0	.79 0	1.51 0	.06 0	28.55 .02
1945 P Q	.25 0	.38 0	.49 0	2.97 .01	3.63 0	3.43 .01	3.80 .01	1.35 0	2.47 T	.32 0	.02 0	1.02 0	20.13 .03
1946 P Q	.66 .03	.01 0	1.64 0	.22 0	2.84 0	2.64 0	3.31 0	3.79 .02	5.64 .01	4.24 0	1.99 0	.01 0	26.99 .06
1947 P Q	.50 0	.19 0	.65 0	3.71 T	2.64 0	5.99 T	1.49 0	1.11 0	.35 0	.41 0	1.29 0	1.16 0	19.49 T
1948 P Q	.09 0	1.12 0	.45 0	.53 0	1.70 0	4.06 0	4.34 T	.87 0	.97 0	.76 0	1.21 0	.41 0	16.51 T
1949 P Q	.95 0	.51 0	1.58 0	2.09 0	5.56 .02	6.28 .02	3.24 .04	1.05 0	1.76 0	3.03 .13	0 0	.17 0	26.22 .21
1950 P Q	.02 0	.53 0	.27 0	.62 0	3.78 T	2.01 T	5.42 T	2.22 0	4.79 .08	1.30 T	.52 0	0 0	21.48 .08
1951 P Q	.38 0	1.60 T	1.07 0	3.15 0	3.56 0	10.09 1.04	5.83 .70	3.43 0	3.33 0	1.70 0	.52 0	.12 0	34.78 1.74
1952 P Q	.21 0	.52 0	1.71 0	2.37 .01	2.96 .01	4.76 .10	5.67 .15	1.34 0	.42 0	0 0	.74 0	.84 0	21.54 .27
1953 P Q	.10 0	.78 0	1.13 0	2.12 0	2.98 0	3.18 T	1.34 0	1.56 0	1.30 0	.66 0	2.40 0	1.16 0	18.71 T
1954 P Q	.04 0	.29 0	.21 0	1.59 0	6.03 .14	1.18 0	.93 0	3.94 0	1.53 0	1.84 0	.01 0	.45 0	18.04 .14
1955 P Q	.36 0	.21 0	.17 0	.61 0	2.95 0	3.79 0	.74 0	.50 0	4.67 .08	.17 0	0 0	.24 0	14.41 .08
P Q													
P Q													
P Q													
* Av. P * Av. Q	.32 T	.53 T	.83 .01	2.20 T	3.32 .01	4.69 .08	2.74 .06	2.45 T	2.41 .01	1.25 .01	.79 0	.49 0	22.02 .18
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Little Blue River Watershed; Kansas River Basin.

AREA: 3.40 ac.

SHAPE: Roughly triangular, 600 ft. base, 300 ft. alt.

SLOPES: 8% is in 0-2% class; 38% in 2-5%; 25% in 5-8%; 19% in 8-12%; 10% over 12%. Aspect N.

SOILS: Loessial; topsoil - silt loam texture, medium to fine crumb structure, 53% is 8-12 in. thick, 47% is 5-8 in. thick; permeability of subsoil - 80% is moderately slow and 20% is moderate; internal drainage - medium. Hastings silt loam - 80%; Holdrege silt loam - 20%.

EROSION: 1 - 53%; 2 - 47%.

LAND CAPABILITY: II - 8%; III - 63%; IV - 19%; VI - 10%.

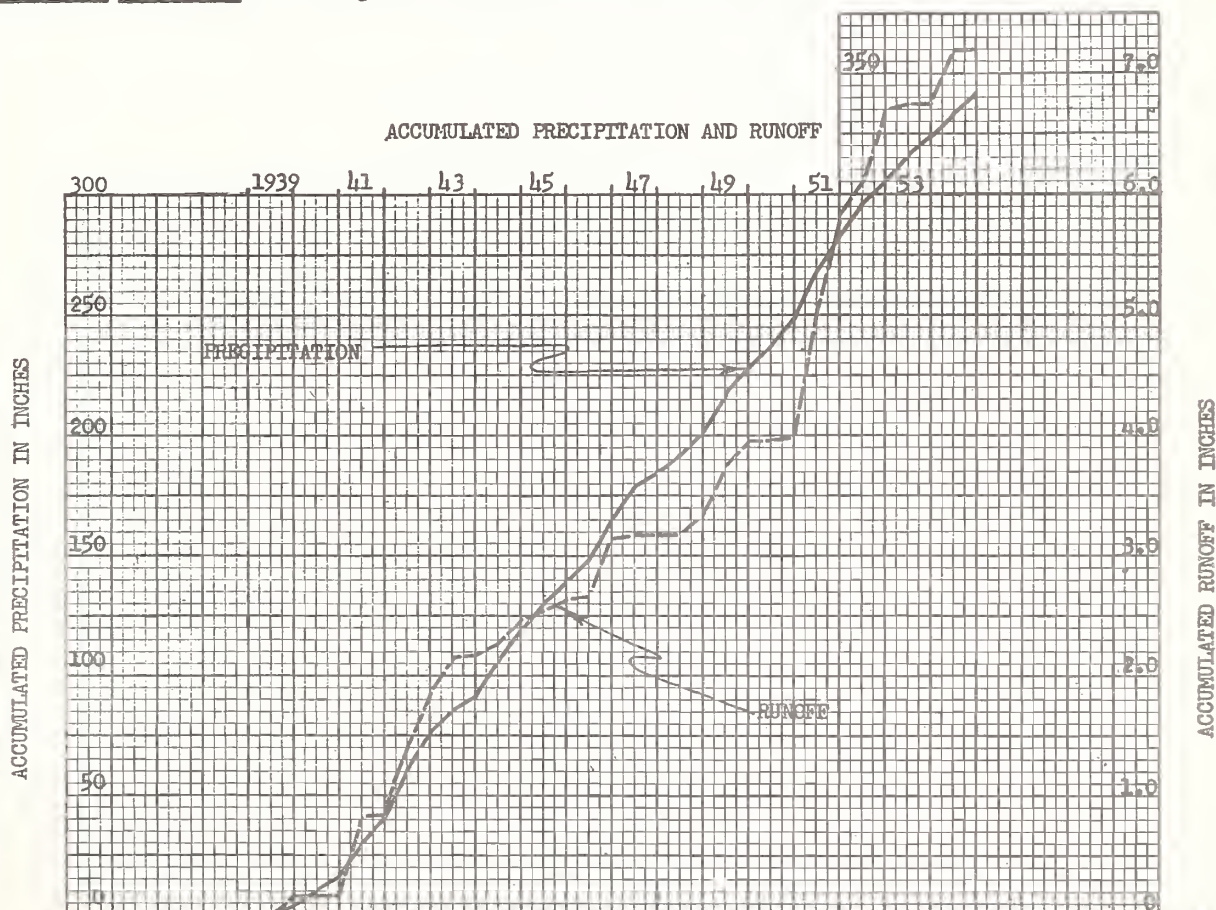
SURFACE DRAINAGE: Good; length of principal waterway - 620 ft.; a natural watershed with surface flow to a sumped draw in lower half of watershed; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Native grass meadow, consisting mostly of blue grama and side oat grama; 1939-40 - grass was poor due to drought; 1941 - fair, 1942 - 54 - very good to excellent..

GENERALLY REPRESENTS: Native grass meadow in Central Nebraska-Kansas Loess Plains



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     **Hastings, Nebraska, Watershed 2-H**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q			0.91 0	2.37 0	1.79 0	4.40 0	1.22 0	2.57 .16	0.04 0	0.37 0	0 0	0.24 0	13.91 .16
1940 P Q	0.25 0	0.28 0	.61 0	1.15 0	2.23 T	1.43 T	.32 0	1.36 0	1.42 0	1.04 0	1.63 0	.47 0	12.19 T
1941 P Q	.41 .04	.40 0	.17 .21	3.50 T	2.20 0	8.62 .40	1.49 0	2.86 0	2.42 0	2.56 0	.88 0	.76 0	26.27 .65
1942 P Q	.08 .11	.52 0	1.82 .03	3.52 0	2.77 0	8.44 .44	2.27 T	4.55 .22	6.70 .26	.37 0	.15 0	.99 0	32.18 1.06
1943 P Q	0 0	.77 .23	.19 0	2.44 0	1.61 0	6.03 .04	2.31 0	1.39 0	.02 0	.86 0	.12 0	.14 0	15.88 .27
1944 P Q	.84 0	.15 0	1.10 0	4.27 0	5.73 .10	3.51 .03	1.73 0	7.71 .22	.92 0	.87 0	1.54 0	.05 0	28.42 .35
1945 P Q	.34 T	.48 0	.60 0	2.97 T	3.52 0	3.26 .03	3.63 .11	1.39 0	2.39 0	.31 0	.02 0	1.11 0	20.02 .14
1946 P Q	.47 .03	T 0	1.54 0	.21 0	2.88 0	2.54 0	3.32 0	3.91 .19	5.42 .24	4.18 .02	1.85 0	T 0	26.32 .48
1947 P Q	.55 0	.11 0	.51 0	3.54 .04	2.62 T	5.75 .02	1.46 T	1.08 0	.33 0	.43 0	1.27 0	1.08 0	18.73 .06
1948 P Q	.10 0	.98 0	.56 0	.49 0	1.71 0	3.97 0	4.51 .18	.88 T	.96 0	.82 0	1.16 0	.51 0	16.65 .18
1949 P Q	.95 0	.49 0	1.54 0	2.13 0	5.54 .17	6.34 .26	3.53 .06	1.05 0	1.83 0	3.12 .09	0 0	.17 0	26.69 .58
1950 P Q	T 0	.39 0	.23 0	.61 0	3.99 0	2.08 .01	5.28 T	2.21 0	4.58 .05	1.29 0	.54 0	0 0	21.20 .06
1951 P Q	.34 0	1.61 .01	1.08 0	3.13 0	3.51 0	10.16 1.06	5.70 .76	3.42 T	3.21 0	1.81 0	.50 0	.10 0	34.57 1.83
1952 P Q	.23 0	.50 0	1.58 0	2.27 0	2.75 .06	5.25 .23	5.89 .58	1.46 0	.47 0	0 0	.82 0	.88 0	22.10 .87
1953 P Q	.14 0	1.04 0	1.19 0	2.07 0	2.75 0	3.48 .05	1.30 0	1.79 0	1.32 0	.69 0	2.39 0	1.06 0	19.22 .05
1954 P Q	.04 0	.29 0	.25 0	1.52 0	6.55 .46	1.33 0	.91 0	4.07 0	1.42 0	1.80 0	.01 0	.45 0	18.64 .46
P Q													
P Q													
P Q													
P Q													
*Av. P *Av. Q	.32 .01	.53 .02	.86 .02	2.25 T	3.36 .05	4.81 .17	2.91 .11	2.61 .04	2.23 .04	1.34 .01	.86 0	.52 0	22.60 .47
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

Notes: \* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed; Republican River Basin.

AREA: 3.95 ac.

SHAPE: Roughly fan shaped, 600 ft. radius, 400 ft. arc.

SLOPES: 1% is in 0-2% class; 36% in 2-5%; 39% in 5-8%; 19% in 8-12%; 5% over 12%. Aspect W.

SOILS: Loessial. Topsoil - 38% silt loam texture, medium to fine crumb structure, 62% silty clay loam texture, medium to fine granular structure; 33% is 5-8 in. thick, 31% is 3-5 in. thick and 36% is 0-3 in. thick. Permeability of subsoil - 95% is moderately slow and 5% is moderate. Internal drainage - medium. Hastings silt loam - 33%; Hastings silty clay loam - 62%; Colby silt loam - 5%. EROSION: 2 - 33%; 3 - 67%.

LAND CAPABILITY: II - 1%; III - 51%; IV - 31%; VI - 17%.

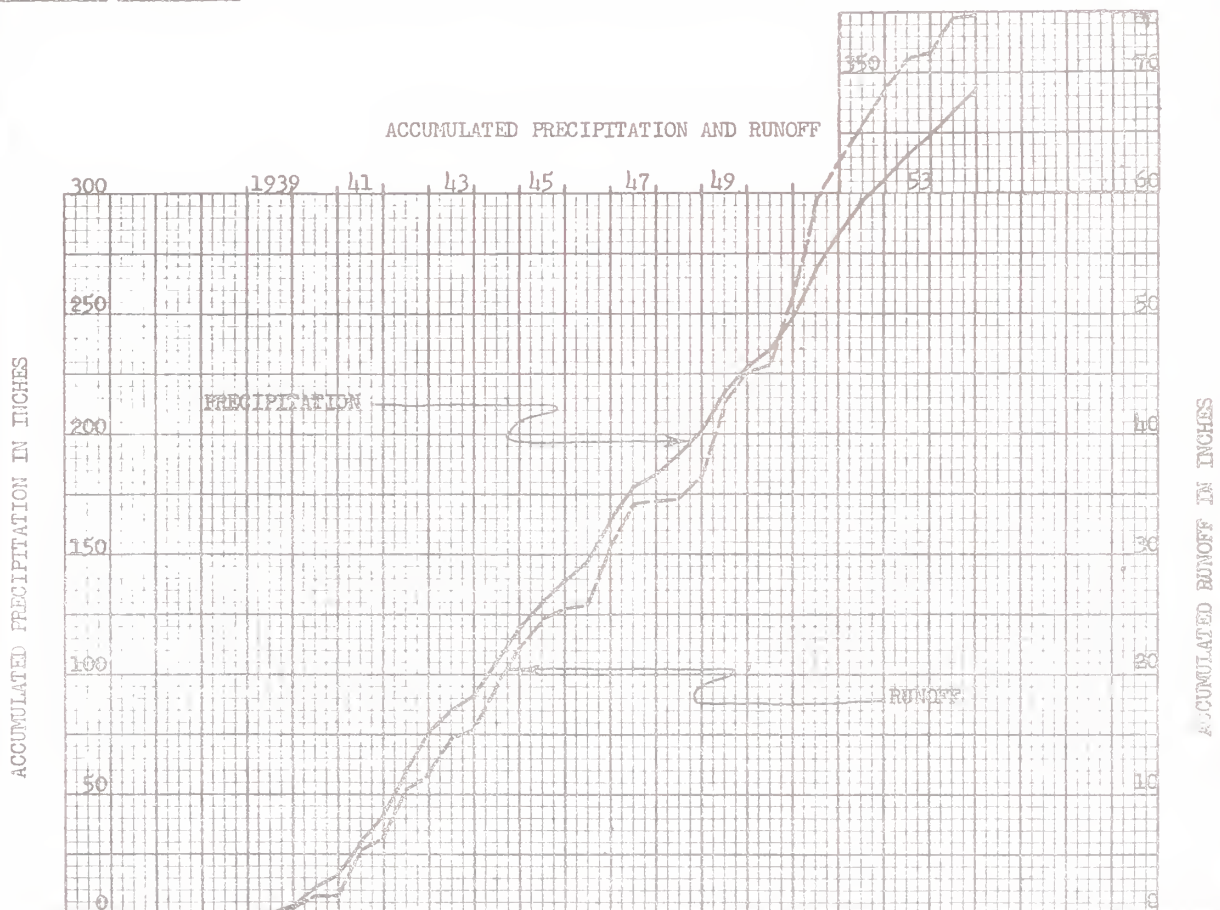
SURFACE DRAINAGE: Good; length of principal waterway - 620 ft.; a natural watershed with surface flow to 2 forks uniting about 200 ft. above the flume to form a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939-40 - strip cropped with corn and oats, farmed on the contour; 1941-54 - corn, oats, wheat rotation farmed in straight rows except in 1942 and 46 when oats and wheat were farmed on the contour.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Hastings, Nebraska, Watershed 3-H

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P			0.91	2.37	1.79	4.40	1.22	2.57	0.04	0.37	0	0.24	13.91
Q			.03	.16	.02	1.07	0	.78	0	0	0	0	2.06
1940 P	0.25	0.28	.61	1.15	2.23	1.43	.32	1.36	1.42	1.04	1.63	.47	12.19
Q	0	.03	.51	0	.04	.04	0	0	0	0	0	0	.62
1941 P	.41	.40	.17	3.50	2.20	8.62	1.49	2.86	2.42	2.56	.88	.76	26.27
Q	.01	.01	.06	.24	T	3.57	0	.32	.07	.62	.04	0	4.94
1942 P	.08	.52	1.82	3.52	2.77	8.44	2.27	4.55	6.70	.37	.15	.99	32.18
Q	.41	0	.23	.13	.05	3.10	.23	.88	.55	0	0	0	5.58
1943 P	0	.77	.19	2.44	1.61	6.03	2.31	1.39	.02	.86	.12	.14	15.88
Q	0	* .05	.04	.38	.09	*2.42	.21	T	0	0	0	0	3.19
1944 P	.84	.15	1.10	4.27	5.73	3.51	1.73	7.71	.92	.87	1.54	.05	28.42
Q	0	.01	.12	.97	2.02	.80	0	2.90	* .11	.06	.11	0	7.10
1945 P	.34	.48	.60	2.97	3.52	3.26	3.63	1.39	2.39	.31	.02	1.11	20.02
Q	0	0	0	.49	.84	*1.29	.68	.01	T	0	0	0	3.31
1946 P	.47	T	1.54	.21	2.88	2.54	3.32	3.91	5.42	4.18	1.85	T	26.32
Q	.03	0	.02	0	.01	.20	.34	.91	1.86	1.35	.68	0	5.40
1947 P	.55	.11	.51	3.54	2.62	5.75	1.46	1.08	.33	.43	1.27	1.08	18.73
Q	0	0	0	.50	.17	2.61	.09	0	0	0	0	0	3.37
1948 P	.10	.98	.56	.49	1.71	3.97	4.51	.88	.96	.82	1.16	.51	16.65
Q	0	0	* .40	0	0	.27	1.44	0	0	0	0	0	2.11
1949 P	.95	.49	1.54	2.13	5.54	6.34	3.53	1.05	1.83	3.12	0	.17	26.69
Q	0	0	.07	.19	3.27	2.80	.94	0	.05	1.36	0	0	8.68
1950 P	T	.39	.23	.61	3.99	2.08	5.28	2.21	4.58	1.29	.54	0	21.20
Q	0	0	0	0	.05	.50	2.13	.21	*2.66	* .71	0	0	6.26
1951 P	.34	1.61	1.08	3.13	3.51	10.16	5.70	3.42	3.21	1.81	.50	.10	34.57
Q	0	* .39	* .10	.28	.81	6.38	*3.80	.04	.04	0	0	0	11.84
1952 P	.23	.50	1.58	2.27	2.75	5.25	5.89	1.46	.47	0	.82	.88	22.10
Q	0	0	0	.06	.78	1.72	3.15	0	0	0	0	0	5.71
1953 P	.14	1.04	1.19	2.07	2.75	3.48	1.30	1.79	1.32	.69	2.39	1.06	19.22
Q	0	0	0	.01	.98	1.47	0	.09	.03	0	0	0	2.58
1954 P	.04	.29	.25	1.52	6.55	1.33	.91	4.07	1.42	1.80	.01	.45	18.64
Q	0	0	0	.10	2.93	0	0	.05	.05	.22	0	0	3.35
P													
Q													
P													
Q													
P													
Q													
**Av. P	.32	.53	.86	2.25	3.36	4.81	2.91	2.61	2.23	1.34	.86	.52	22.60
**Av. Q	.03	.03	.10	.22	.80	1.81	.87	.36	.36	.29	.06	0	4.93
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \*Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

4-56

HASTINGS, NEBRASKA Watershed 4-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed; Republican River Basin.

AREA: 3.84 ac.

SHAPE: Roughly fan shaped, 550 ft. radius, 400 ft. arc.

SLOPES: 1% is in 0-2% class; 41% in 2-5%; 39% in 5-8%; 15% in 8-12%; 4% over 12%. Aspect W.

SOILS: Loessial. Topsoil - 74% silt loam texture, medium to fine crumb structure, 26% silty clay loam texture, medium to fine granular structure; 65% is 5-8 in. thick, 20% is 3-5 in. thick and 15% is 0-3 in. thick. Permeability of subsoil - 91% is moderately slow and 9% is moderate. Internal drainage - medium. Hastings silt loam - 65%; Hastings silty clay loam - 26%; Colby silt loam - 9%.

EROSION: 2 - 65%; 3 - 35%.

LAND CAPABILITY: II - 1%; III - 70%; IV - 20%; VI - 9%.

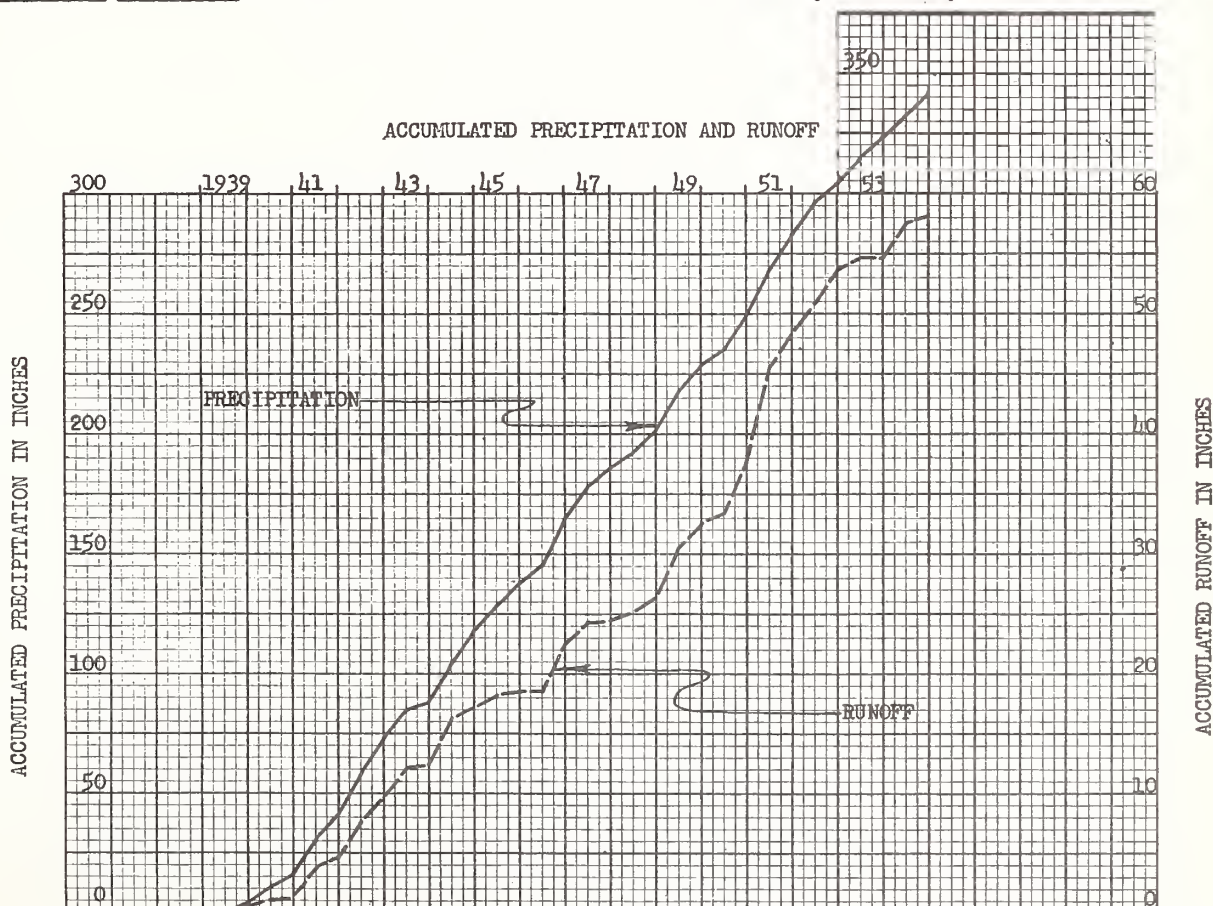
SURFACE DRAINAGE: Good; length of principal waterway - 530 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939 - corn; 1940-54 - a corn, oats and wheat rotation was followed; 1939-42 - farmed alternately on the contour and in straight rows; 1943-45 - on the contour and 1946-54 in straight rows.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.





**MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska, Watershed 4-H**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.37 0	1.86 0	4.57 .70	1.34 .04	2.39 .30	0.04 0	0.39 0	0 0	0.21 0	13.17 1.04
1940 P Q	0.22 0	0.51 .02	0.58 .26	1.07 0	2.59 .06	1.34 .33	.33 0	1.48 0	1.37 .05	1.01 0	1.40 .04	.42 0	12.32 .76
1941 P Q	.39 .03	.41 0	.22 .15	3.56 .46	2.01 .35	8.46 1.85	1.39 0	2.79 T	2.51 0	2.62 .59	.87 .06	.59 0	25.82 3.49
1942 P Q	.03 .22	.53 0	1.74 .07	3.55 .06	2.67 .05	8.35 2.62	2.10 .30	4.62 .87	6.58 1.06	.36 0	.10 0	1.02 0	31.65 5.25
1943 P Q	0 0	.74 * .06	.12 .03	2.43 .25	1.69 T	6.04 1.88	2.32 .05	1.43 0	.04 0	.74 0	.10 0	.17 0	15.82 2.27
1944 P Q	.89 0	.18 .01	1.22 .02	4.65 .89	5.61 2.50	3.50 .75	1.67 0	7.69 .84	.78 0	.79 0	1.51 0	.06 0	28.55 5.01
1945 P Q	.25 0	.38 0	.49 0	2.97 .10	3.63 .18	3.43 .65	3.80 .60	1.35 T	2.47 .01	.32 0	.02 0	1.02 T	20.13 1.54
1946 P Q	.66 T	.01 0	1.64 0	.22 0	2.84 0	2.64 .01	3.31 .17	3.79 .94	5.64 1.49	4.24 .74	1.99 .33	.01 0	26.99 3.68
1947 P Q	.50 0	.19 0	.65 0	3.71 .51	2.64 .07	5.99 1.68	1.49 .08	1.11 0	.35 0	.41 0	1.29 0	1.16 0	19.49 2.34
1948 P Q	.09 0	1.12 0	.45 * .25	.53 0	1.70 0	4.06 .27	4.34 1.02	.87 0	.97 0	.76 0	1.21 0	.41 0	16.51 1.54
1949 P Q	.95 0	.51 0	1.58 .08	2.09 .01	5.56 2.74	6.28 1.44	3.24 .61	1.05 0	1.76 .10	3.03 1.23	0 0	.17 0	26.22 6.21
1950 P Q	.02 0	.53 0	.27 0	.62 0	3.78 .54	2.01 .24	5.42 1.56	2.22 0	4.79 2.44	1.30 .72	.52 0	0 0	21.48 5.50
1951 P Q	.38 0	1.60 .20	1.07 .10	3.15 .32	3.56 * .81	10.09 5.92	5.83 2.79	3.43 .08	3.33 .12	1.70 0	.52 0	.12 0	34.78 10.34
1952 P Q	.21 0	.52 0	1.71 0	2.37 .04	2.96 .21	4.76 2.46	5.67 2.53	1.34 .01	.42 0	0 0	.74 0	.84 0	21.54 5.25
1953 P Q	.10 0	.78 0	1.13 0	2.12 .02	2.98 .49	3.18 .77	1.34 0	1.56 0	1.30 0	.66 0	2.40 0	1.16 0	18.71 1.28
1954 P Q	.04 0	.29 0	.21 0	1.59 .28	6.03 2.69	1.18 0	.93 0	3.94 * .30	1.53 T	1.84 .13	.01 0	.45 0	18.04 3.40
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	.32 .02	.55 .02	.87 .06	2.31 .20	3.35 .71	4.75 1.39	2.88 .65	2.58 .20	2.26 .35	1.32 .23	.85 .03	.51 T	22.55 3.86
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

4-56

HASTINGS, NEBRASKA Watershed 5-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 3.93 ac.

SHAPE: Roughly oval shaped, 300 ft. wide, 650 ft. long.

SLOPES: 2% is in 0-2% class; 51% in 2-5%; 33% in 5-8%; 11% in 8-12%; 3% over 12%. Aspect W.

SOILS: Loessial. Topsoil - 93% silt loam texture, medium to fine crumb structure, 7% silty clay loam texture, medium to fine granular structure; 63% is 8-12 in. thick, 24% is 5-8 in. thick, 13% is 0-3 in. thick. Permeability of subsoil - 94% is moderately slow and 6% is moderate. Internal drainage - medium. Hastings silt loam - 87%; Hastings silty clay loam - 7%; Colby silt loam - 6%.  
EROSION: 1 - 63%; 2 - 24%; 3 - 13%.

LAND CAPABILITY: II - 2%; III - 82%; IV - 5%; VI - 11%.

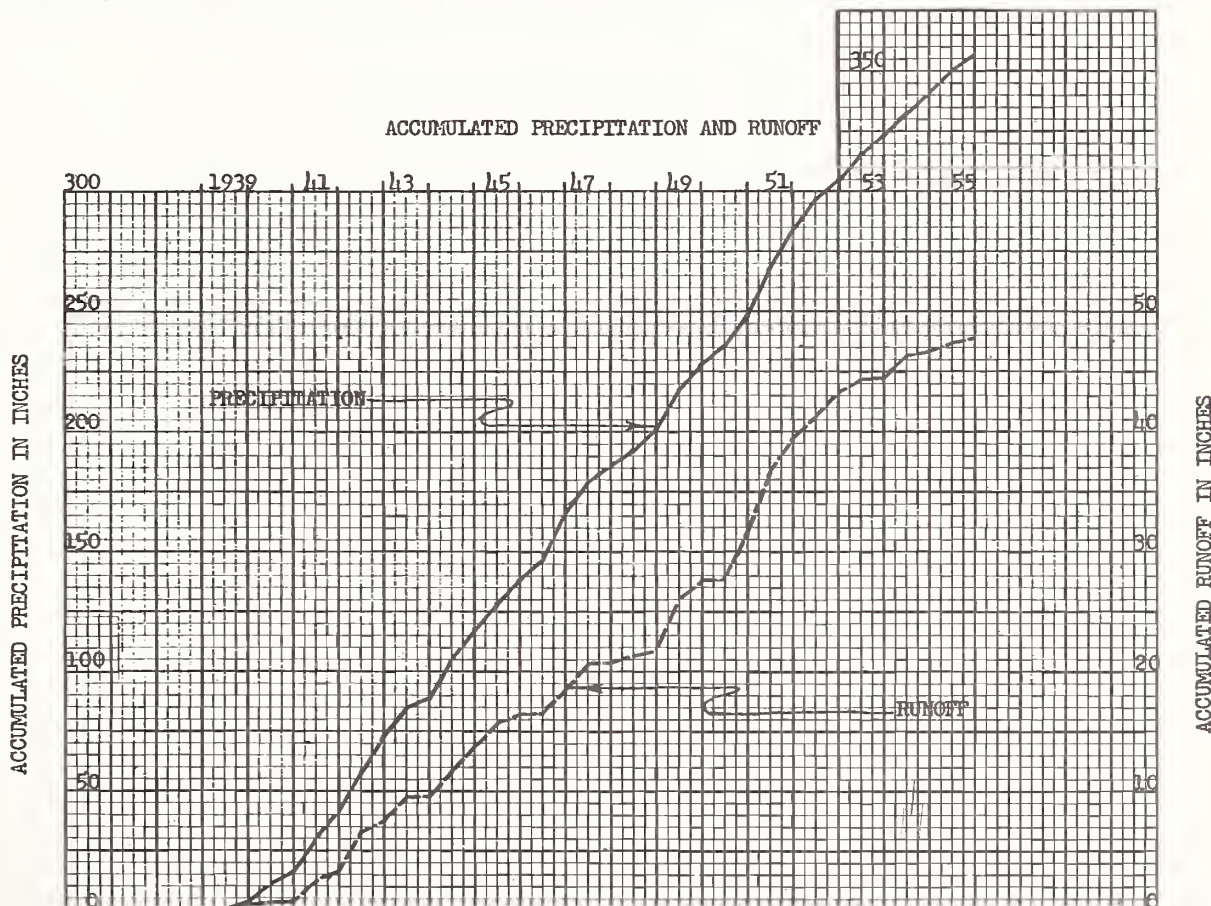
SURFACE DRAINAGE: Good; length of principal waterway - 680 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939-40 - corn and oats farmed on the contour; 1941-55 - a corn, oats, wheat rotation was followed, farmed on the contour except 1942, 46, and 55 farmed in straight rows.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



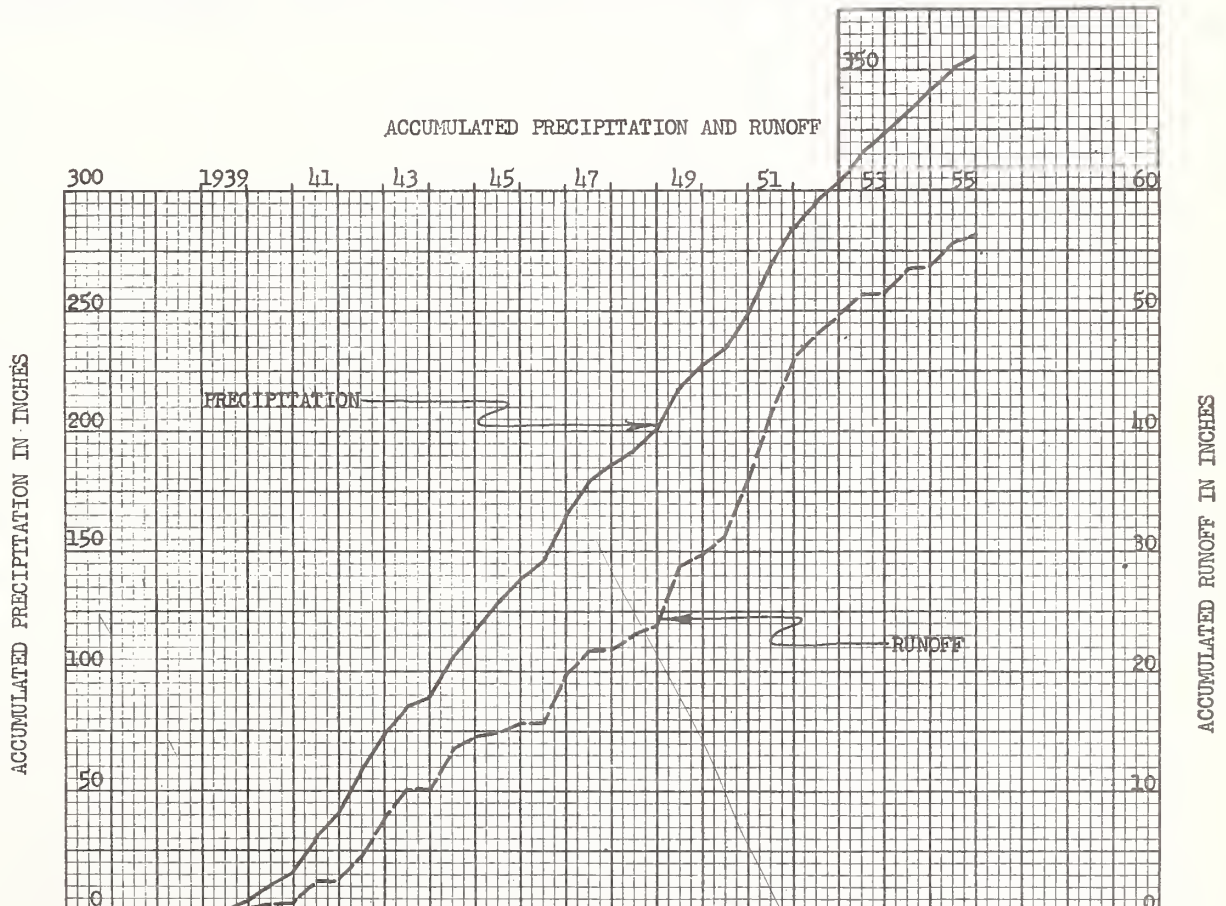
**MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska, Watershed 5-H**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.37 0	1.86 0	4.57 .52	1.34 .01	2.39 .28	0.04 0	0.39 0	0 0	0.21 0	13.17 .81
1940 P Q	0.22 0	0.51 .05	0.58 .09	1.07 0	2.59 .02	1.34 .01	.33 0	1.48 0	1.37 T	1.01 0	1.40 0	.42 0	12.32 .17
1941 P Q	.39 0	.41 0	.22 .13	3.56 .18	2.01 0	8.46 1.74	1.39 0	2.79 .11	2.51 .04	2.62 .38	.87 .12	.59 T	25.82 2.70
1942 P Q	.03 .36	.53 0	1.74 .18	3.55 .18	2.67 .13	8.35 2.41	2.10 .13	4.62 .79	6.58 .16	.36 0	.10 0	1.02 0	31.65 4.34
1943 P Q	0 0	.74 * .02	.12 .02	2.43 .28	1.69 .04	6.04 1.72	2.32 .05	1.43 T	.04 0	.74 0	.10 0	.17 0	15.82 2.13
1944 P Q	.89 0	.18 T	1.22 .01	4.65 .30	5.61 1.31	3.50 .50	1.67 0	7.69 1.80	.78 .07	.79 .02	1.51 .02	.06 0	28.55 4.03
1945 P Q	.25 0	.38 0	.49 0	2.97 .16	3.63 .67	3.43 1.13	3.80 .64	1.35 T	2.47 0	.32 0	.02 0	1.02 T	20.13 2.60
1946 P Q	.66 T	.01 0	1.64 0	.22 0	2.84 .01	2.64 .09	3.31 .19	3.79 .16	5.64 .87	4.24 .57	1.99 .29	.01 0	26.99 2.18
1947 P Q	.50 0	.19 0	.65 0	3.71 .48	2.64 .03	5.99 1.48	1.49 .08	1.11 0	.35 0	.41 0	1.29 0	1.16 0	19.49 2.07
1948 P Q	.09 0	1.12 0	.45 * .50	.53 0	1.70 0	4.06 .11	4.34 .65	.87 0	.97 0	.76 0	1.21 0	.41 0	16.51 1.26
1949 P Q	.95 0	.51 0	1.58 T	2.09 .03	5.56 *2.06	6.28 2.25	3.24 .57	1.05 0	1.76 .01	3.03 .92	0 0	.17 0	26.22 5.84
1950 P Q	.02 0	.53 0	.27 0	.62 0	3.78 .03	2.01 .06	5.42 1.39	2.22 .09	4.79 1.97	1.30 * .44	.52 0	0 0	21.48 3.98
1951 P Q	.38 0	1.60 .14	1.07 .03	3.15 .12	3.56 * .61	10.09 *4.49	5.83 2.50	3.43 .03	3.33 .02	1.70 0	.52 0	.12 0	34.78 7.94
1952 P Q	.21 0	.52 0	1.71 0	2.37 .02	2.96 .63	4.76 .97	5.67 2.12	1.34 0	.42 0	0 0	.74 0	.84 0	21.54 3.74
1953 P Q	.10 0	.78 0	1.13 0	2.12 .01	2.98 .25	3.18 .62	1.34 0	1.56 0	1.30 0	.66 0	2.40 0	1.16 0	18.71 .88
1954 P Q	.04 0	.29 0	.21 0	1.59 T	6.03 2.28	1.18 0	.93 0	3.94 .10	1.53 T	1.84 .09	.01 0	.45 0	18.04 2.47
1955 P Q	.36 0	.21 0	.17 0	.61 0	2.95 .07	3.79 .61	.74 0	.50 0	4.67 .69	.17 0	0 0	.24 0	14.41 1.37
P Q													
P Q													
P Q													
** Av. P ** Av. Q	.32 .02	.53 .01	.83 .06	2.20 .11	3.32 .51	4.69 1.14	2.74 .52	2.45 .19	2.41 .24	1.25 .15	.79 .03	.49 T	22.02 2.98
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



4-56

HASTINGS, NEBRASKA Watershed 6-HLOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.AREA: 4.16 ac.SHAPE: Roughly fan shaped, 600 ft. radius, 380 ft. arc.SLOPES: 6% is in 0-2% class; 63% in 2-5%; 21% in 5-8%; 9% in 8-12%; 1% over 12%. Aspect W.SOILS: Loessial. Topsoil - 85% silt loam texture, medium to fine crumb structure, 15% silty clay loam texture, medium to fine granular structure; 63% is 8-12 in. thick, 22% is 5-8 in. thick, 2% is 3-5 in. thick and 13% is 1-3 in. thick. Permeability of subsoil - moderately slow. Internal drainage - medium. Hastings silt loam - 85%; Hastings silty clay loam - 15%.EROSION: 1 - 63%; 2 - 22%; 3 - 15%.LAND CAPABILITY: II - 6%; III - 75%; IV - 12%; VI - 7%.SURFACE DRAINAGE: Good; length of principal waterway - 680 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1939 - oats, farmed on the contour; 1940 - wheat, farmed in straight rows; 1941-42 - strip cropped with corn and oats on the contour; 1943-45 - oats, wheat, corn rotation farmed on the contour; 1946-55 - oats, wheat, corn rotation, farmed in straight rows.GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Hastings, Nebraska, Watershed 6-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.32 0	1.86 .04	4.57 .97	1.34 T	2.39 .01	0.04 0	0.39 0	0 0	0.21 0	13.12 1.02
1940 P Q	0.22 0	0.51 T	0.58 .10	1.07 0	2.59 .25	1.34 .18	.33 0	1.48 0	1.37 0	1.01 0	1.40 .01	.42 0	12.32 .54
1941 P Q	.39 T	.41 0	.22 .09	3.56 .18	2.01 .08	8.46 1.47	1.39 0	2.79 .05	2.51 T	2.62 * .11	.87 .02	.59 0	25.82 2.00
1942 P Q	.03 .11	.53 0	1.74 .05	3.55 .08	2.67 0	8.35 2.10	2.10 .06	4.62 1.10	6.58 1.85	.36 0	.10 0	1.02 0	31.65 5.35
1943 P Q	0 .03	.74 .25	.12 0	2.43 .24	1.69 .04	6.04 1.64	2.32 .02	1.43 0	.04 0	.74 0	.10 0	.17 0	15.82 2.22
1944 P Q	.89 0	.18 0	1.22 .05	4.65 .62	5.61 2.17	3.50 .78	1.67 0	7.69 .57	.78 .01	.79 T	1.51 0	.06 0	28.55 4.20
1945 P Q	.25 0	.38 0	.49 0	2.97 .03	3.63 .05	3.43 .54	3.80 .78	1.35 T	2.47 .01	.32 0	.02 0	1.02 T	20.13 1.41
1946 P Q	.66 .02	.01 0	1.64 0	.22 0	2.84 0	2.64 .01	3.31 .03	3.79 * .31	5.64 *2.03	4.24 .95	1.99 .73	.01 0	26.99 4.08
1947 P Q	.50 0	.19 0	.65 0	3.71 * .31	2.64 .19	5.99 1.50	1.49 .15	1.11 0	.35 0	.41 0	1.29 0	1.16 0	19.49 2.15
1948 P Q	.09 0	1.12 0	.45 * .80	.53 0	1.70 T	4.06 .33	4.34 .90	.87 0	.97 0	.76 0	1.21 0	.41 0	16.51 2.03
1949 P Q	.95 0	.51 0	1.58 .09	2.09 T	5.56 2.45	6.28 2.41	3.24 .48	1.05 0	1.76 0	3.03 .56	0 0	.17 0	26.22 5.99
1950 P Q	.02 0	.53 0	.27 0	.62 0	3.78 .72	2.01 .68	5.42 2.13	2.22 .09	4.79 2.06	1.30 .33	.52 0	0 0	21.48 6.01
1951 P Q	.38 0	1.60 .05	1.07 .01	3.15 .02	3.56 .05	10.09 5.26	5.83 3.53	3.43 .29	3.33 .83	1.70 .03	.52 0	.12 0	34.78 10.07
1952 P Q	.21 0	.52 0	1.71 0	2.37 .12	2.96 .64	4.76 1.22	5.67 1.80	1.34 0	.42 0	0 0	.74 0	.84 0	21.54 3.78
1953 P Q	.10 0	.78 0	1.13 0	2.12 .05	2.98 .38	3.18 1.01	1.34 0	1.56 .01	1.30 0	.66 0	2.40 0	1.16 0	18.71 1.45
1954 P Q	.04 0	.29 0	.21 0	1.59 0	6.03 2.09	1.18 0	.93 0	3.94 .28	1.53 .08	1.84 .11	.01 0	.45 0	18.04 2.56
1955 P Q	.36 0	.21 0	.17 0	.61 0	2.95 .59	3.79 .86	.74 0	.50 0	4.67 .88	.17 0	0 0	.24 0	14.41 2.33
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.32 .01	.53 .02	.83 .07	2.20 .10	3.32 .61	4.69 1.25	2.74 .62	2.45 .17	2.41 .48	1.25 .13	.79 .05	.49 T	22.02 3.51
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Febr., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



4-56

HASTINGS, NEBRASKA Watershed 7-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 4.15 ac.

SHAPE: Rectangular, 320 ft. wide, 600 ft. long.

SLOPES: 11% is in 0-2% class; 42% in 2-5%; 41% in 5-8%; 4% in 8-12%; 2% over 12%. Aspect W.

SOILS: Loessial. Topsoil - 73% silt loam texture, medium to fine crumb structure, 27% silty clay loam texture, medium to fine granular structure; 61% is 8-12 in. thick, 12% is 5-8 in. thick, 4% is 3-5 in. thick and 23% is 0-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 73%, Hastings silty clay loam - 27%.

EROSION: 1 - 61%; 2 - 12%; 3 - 27%.

LAND CAPABILITY: II - 11%; III - 57%; IV - 15%; VI - 17%.

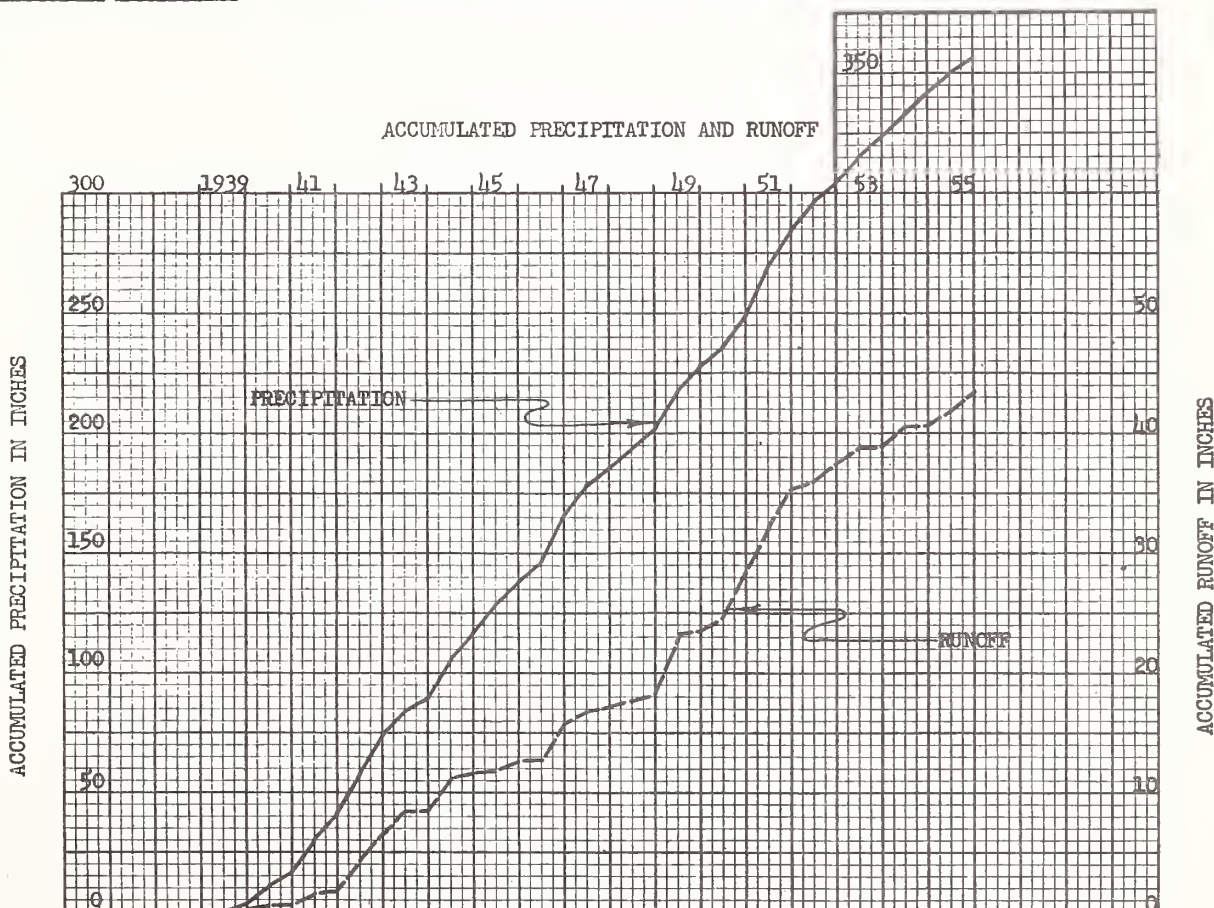
SURFACE DRAINAGE: Good; length of principal waterway - 630 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939 - oats, farmed in straight rows; 1940 - wheat, farmed on the contour; 1941-42 - strip cropped with corn and oats on the contour; 1943-54 - an oats, wheat, corn rotation farmed on the contour was followed, except in 1946 oats was farmed in straight rows; 1955 - corn farmed in straight rows.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.





**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Hastings, Nebraska, Watershed 7-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.32 0	1.86 .04	4.57 .85	1.34 T	2.39 0	0.04 0	0.39 0	0 0	0.21 0	13.12 .89
1940 P Q	0.22 0	0.51 0	0.58 .03	1.07 0	2.59 .30	1.34 .06	.33 0	1.48 0	1.37 0	1.01 0	1.40 T	.42 0	12.32 .39
1941 P Q	.39 .01	.41 0	.22 .07	3.56 .09	2.01 .03	8.46 1.06	1.39 0	2.79 .01	2.51 0	2.62 .11	.87 .04	.59 0	25.82 1.42
1942 P Q	.03 .21	.53 0	1.74 .09	3.55 .11	2.67 0	8.35 2.06	2.10 .02	4.62 .88	6.58 1.34	.36 0	.10 0	1.02 0	31.65 4.71
1943 P Q	0 .03	.74 .26	.12 0	2.43 .13	1.69 .02	6.04 1.31	2.32 T	1.43 0	.04 0	.74 0	.10 0	.17 0	15.82 1.75
1944 P Q	.89 0	.18 0	1.22 0	4.65 .32	5.61 2.09	3.50 .38	1.67 0	7.69 .28	.78 0	.79 0	1.51 0	.06 0	28.55 3.07
1945 P Q	.25 0	.38 0	.49 0	2.97 .02	3.63 .05	3.43 .39	3.80 .63	1.35 T	2.47 T	.32 0	.02 0	1.02 T	20.13 1.09
1946 P Q	.66 T	.01 .01	1.64 0	.22 0	2.84 0	2.64 T	3.31 T	3.79 .13	5.64 1.87	4.24 .81	1.99 .65	.01 0	26.99 3.47
1947 P Q	.50 0	.19 0	.65 0	3.71 .13	2.64 .08	5.99 .88	1.49 .03	1.11 0	.35 0	.41 0	1.29 0	1.16 0	19.49 1.12
1948 P Q	.09 0	1.12 0	.45 * .65	.53 0	1.70 .01	4.06 .09	4.34 .31	.87 T	.97 0	.76 0	1.21 0	.41 0	16.51 1.06
1949 P Q	.95 0	.51 0	1.58 .03	2.09 T	5.56 2.40	6.28 2.52	3.24 .18	1.05 0	1.76 0	3.03 .45	0 0	.17 0	26.22 5.58
1950 P Q	.02 0	.53 0	.27 0	.62 0	3.78 .50	2.01 .51	5.42 1.58	2.22 .04	4.79 1.83	1.30 .30	.52 0	0 0	21.48 4.76
1951 P Q	.38 0	1.60 .06	1.07 .01	3.15 .01	3.56 .01	10.09 3.74	5.83 2.31	3.43 .17	3.33 .37	1.70 .02	.52 0	.12 0	34.78 6.70
1952 P Q	.21 0	.52 0	1.71 0	2.37 .18	2.96 .61	4.76 .08	5.67 1.62	1.34 0	.42 0	0 0	.74 0	.84 0	21.54 2.49
1953 P Q	.10 0	.78 0	1.13 0	2.12 .03	2.98 .36	3.18 .90	1.34 0	1.56 0	1.30 0	.66 0	2.40 0	1.16 0	18.71 1.29
1954 P Q	.04 0	.29 0	.21 0	1.59 0	6.03 1.68	1.18 0	.93 0	3.94 .09	1.53 0	1.84 T	.01 0	.45 0	18.04 1.77
1955 P Q	.36 0	.21 0	.17 0	.61 0	2.95 .24	3.79 .99	.74 0	.50 0	4.67 1.22	.17 0	0 0	.24 0	14.41 2.45
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.32 .02	.53 .02	.83 .06	2.20 .06	3.32 .52	4.69 .94	2.74 .42	2.45 .10	2.41 .41	1.25 .11	.79 .04	.49 T	22.02 2.70
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent Q - excellent.

4-56

HASTINGS, NEBRASKA Watershed 8-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Little Blue River Watershed; Kansas River Basin.

AREA: 3.93 ac.

SHAPE: Truncated, 200 ft. base, 350 ft. top, 600 ft. alt.

SLOPES: 16% is in 0-2% class; 74% in 2-5%; 10% in 5-8%. Aspect N.

SOILS: Loessial; topsoil - silt loam texture, medium to fine crumb structure, 60% is 8-12 in. thick and 40% is 5-8 in. thick; subsoil - moderately slow permeability; internal drainage - medium. Hastings silt loam.

EROSION: 1 - 60%; 2 - 40%.

LAND CAPABILITY: II - 16%; III - 84%.

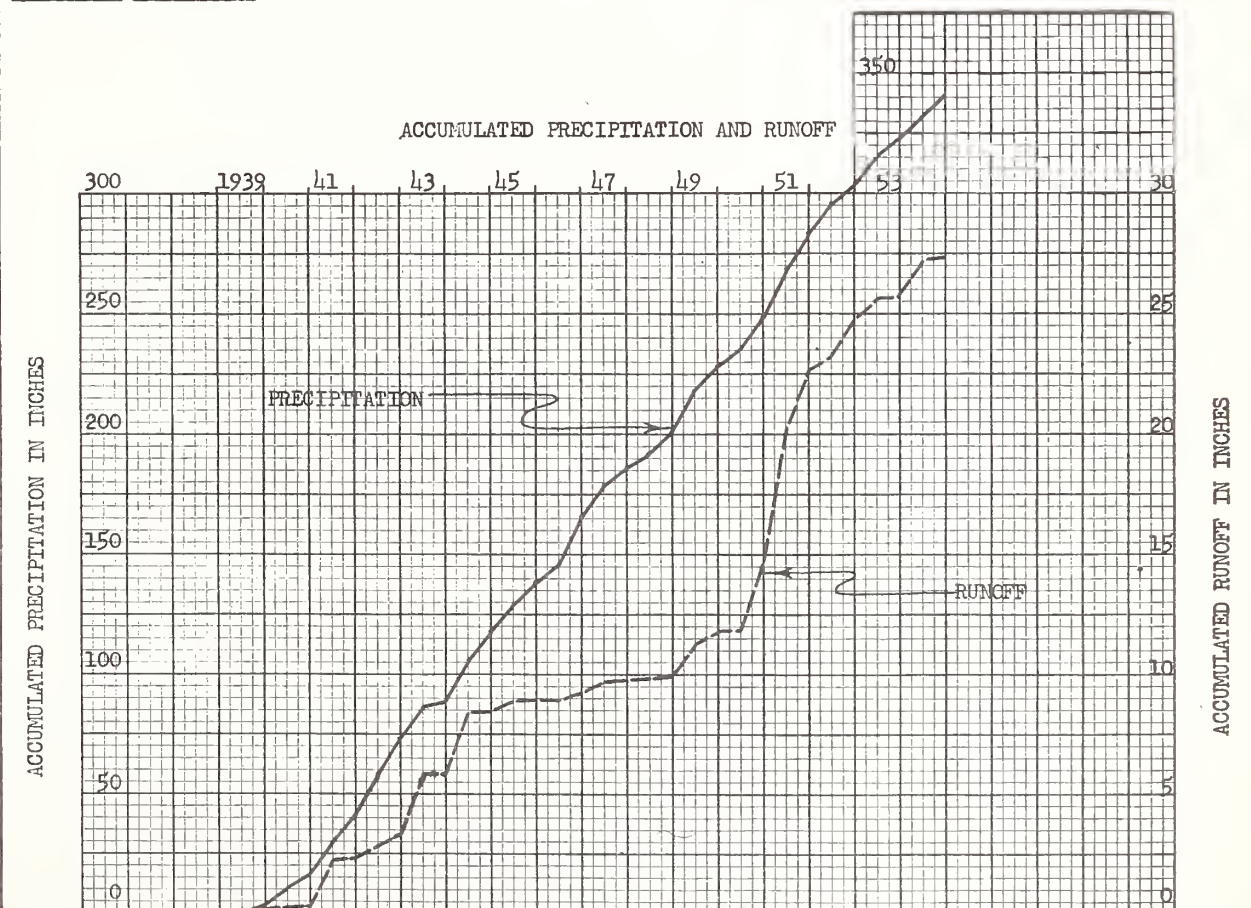
SURFACE DRAINAGE: Good; length of principal waterway - 670 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939 - corn; 1940-54 - a corn, oats, wheat rotation was followed; 1939-42 - farmed alternately in straight rows and on the contour; 1943-45 - in straight rows and 1946-54 - farmed on the contour.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Hastings, Nebraska, Watershed 8-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P			0.91	2.32	1.86	4.57	1.34	2.39	0.04	0.39	0	0.21	14.03
Q			0	.02	.01	.99	.04	.31	0	0	0	0	1.37
1940 P	0.22	0.51	.58	1.07	2.59	1.34	.33	1.48	1.37	1.01	1.40	.42	12.32
Q	0	.03	0	0	T	T	0	0	0	0	T	0	.03
1941 P	.39	.41	.22	3.56	2.01	8.46	1.39	2.79	2.51	2.62	.87	.59	25.82
Q	0	0	.07	.09	.23	1.53	0	0	0	.04	.02	0	1.98
1942 P	.03	.53	1.74	3.55	2.67	8.35	2.10	4.62	6.58	.36	.10	1.02	31.65
Q	0	0	T	.01	0	.35	.03	.49	.19	0	0	0	1.07
1943 P	0	.74	.12	2.43	1.69	6.04	2.32	1.43	.04	.74	.10	.17	15.82
Q	0	.01	0	T	0	2.37	T	0	0	0	0	0	2.38
1944 P	.89	.18	1.22	4.65	5.61	3.50	1.67	7.69	.78	.79	1.51	.06	28.55
Q	0	0	T	.16	*1.93	.53	0	.06	0	0	0	0	2.68
1945 P	.25	.38	.49	2.97	3.63	3.43	3.80	1.35	2.47	.32	.02	1.02	20.13
Q	0	0	0	0	.01	.22	.25	0	0	0	0	0	.48
1946 P	.66	.01	1.64	.22	2.84	2.64	3.31	3.79	5.64	4.24	1.99	.01	26.99
Q	0	0	0	0	0	0	0	.06	.11	.02	.01	0	.20
1947 P	.50	.19	.65	3.71	2.64	5.99	1.49	1.11	.35	.41	1.29	1.16	19.49
Q	0	0	0	.08	T	.37	0	0	0	0	0	0	.45
1948 P	.09	1.12	.45	.53	1.70	4.06	4.34	.87	.97	.76	1.21	.41	16.51
Q	0	0	0	0	0	.01	.29	0	0	0	0	0	.30
1949 P	.95	.51	1.58	2.09	5.56	6.28	3.24	1.05	1.76	3.03	0	.17	26.22
Q	0	0	0	0	1.20	.31	.02	0	0	.26	0	0	1.79
1950 P	.02	.53	.27	.62	3.78	2.01	5.42	2.22	4.79	1.30	.52	0	21.48
Q	0	0	0	0	.06	T	.52	0	1.94	.53	0	0	3.05
1951 P	.38	1.60	1.07	3.15	3.56	10.09	5.83	3.43	3.33	1.70	.52	.12	34.78
Q	0	.19	.06	.11	.61	4.32	2.45	*.04	.11	0	0	0	7.89
1952 P	.21	.52	1.71	2.37	2.96	4.76	5.67	1.34	.42	0	.74	.84	21.54
Q	0	0	0	.01	*.02	*.58	1.48	T	0	0	0	0	2.09
1953 P	.10	.78	1.13	2.12	2.98	3.18	1.34	1.56	1.30	.66	2.40	1.16	18.71
Q	0	0	0	.01	.12	.71	0	0	0	0	0	0	.84
1954 P	.04	.29	.21	1.59	6.03	1.18	.93	3.94	1.53	1.84	.01	.45	18.04
Q	0	0	0	.02	1.48	0	0	.05	0	.01	0	0	1.56
P													
Q													
P													
Q													
P													
Q													
** Av. P	.32	.55	.87	2.31	3.35	4.75	2.88	2.58	2.26	1.32	.85	.51	22.55
** Av. Q	0	.02	.01	.03	.38	.75	.34	.05	.16	.06	T	0	1.80
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



4-56

HASTINGS, NEBRASKA

Watershed 9-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 3.78 ac.

SHAPE: Rectangular, 400 ft. wide, 420 ft. long.

SLOPES: 14% is in 0-2% class; 42% in 2-5%; 37% in 5-8%; 7% in 8-12%. Aspect E.

SOILS: Loessial. Topsoil - 89% silt loam texture, medium to fine crumb structure, 11% silty clay loam texture, medium to fine granular structure; 61% is 8-12 in. thick, 28% is 5-8 in. thick, 10% is 3-5 in. thick and 1% is 0-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 89%, Hastings silty clay loam - 11%.

EROSION: 1 - 61%; 2 - 28%; 3 - 11%.

LAND CAPABILITY: II - 14%; III - 76%; IV - 7%; VI - 3%.

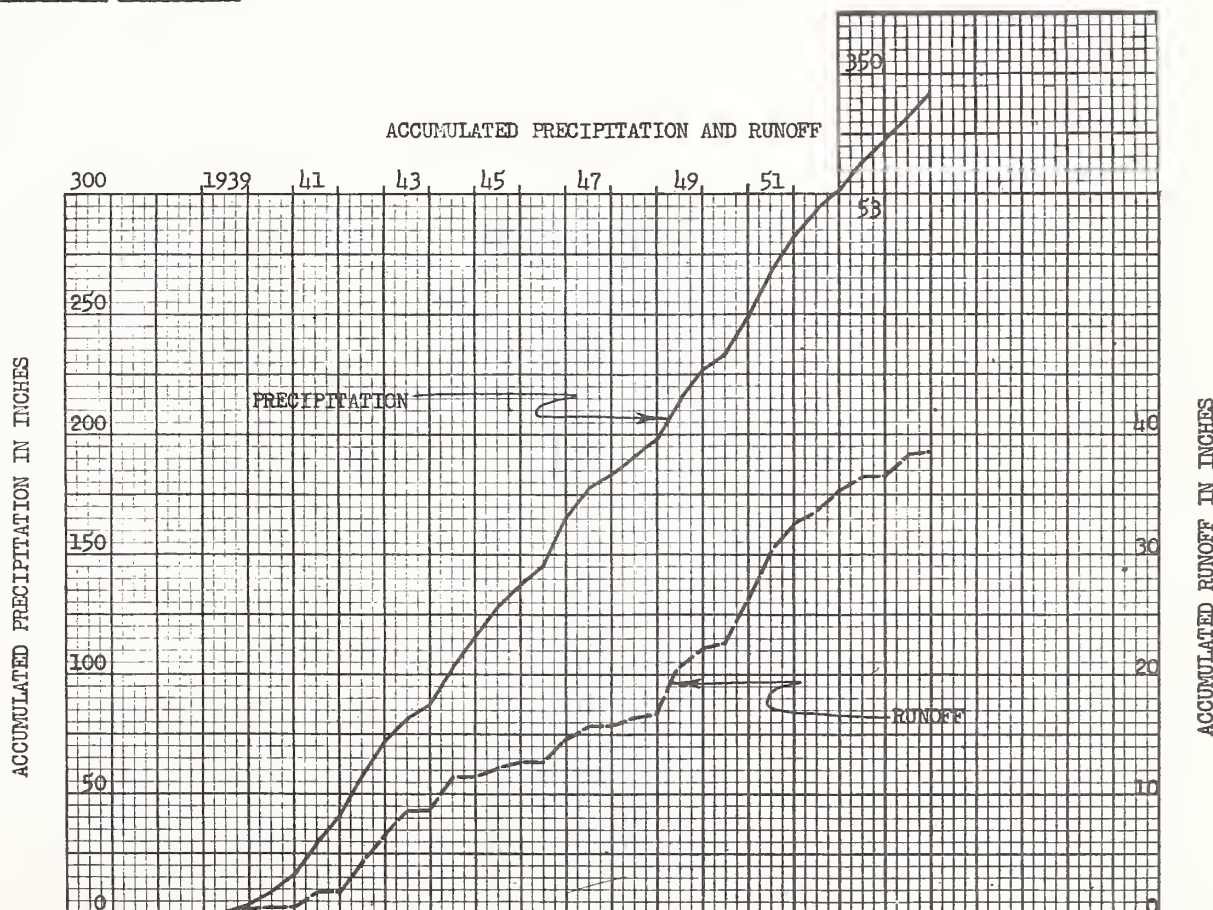
SURFACE DRAINAGE: Good; length of principal waterway - 530 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939-54 - a corn, oats, wheat rotation was followed; 1939-43 - farmed alternately in straight rows and on the contour; 1944-45 - farmed in straight rows; 1946-54 - on the contour.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Hastings, Nebraska, Watershed 9-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.35 0	1.89 T	4.05 .56	1.30 0	2.33 .24	0.02 0	0.44 0	0 0	0.19 0	12.57 .80
1940 P Q	0.13 0	0.21 T	0.52 .03	1.07 0	2.30 .02	1.37 .01	.35 0	1.44 0	1.42 0	1.09 0	1.44 0	.50 0	11.84 .06
1941 P Q	.42 T	.38 0	.16 .06	3.52 .14	1.87 .10	8.00 1.12	1.46 0	2.84 .02	2.43 0	2.90 .01	.95 T	.69 0	25.62 1.45
1942 P Q	.11 0	.53 0	1.82 T	3.38 0	2.75 0	8.18 2.62	1.86 .02	4.35 .93	6.36 1.31	.36 0	.13 0	1.06 0	30.89 4.88
1943 P Q	0 .01	.70 .24	.17 0	2.42 * .10	1.67 .02	6.19 *1.80	2.21 T	1.38 0	.05 0	.60 0	.10 0	.13 0	15.62 2.17
1944 P Q	.88 0	.19 0	.88 0	4.44 .03	5.70 1.79	3.73 .51	1.71 0	7.81 .10	.79 T	.85 0	1.67 0	.08 0	28.73 2.43
1945 P Q	.36 0	.48 0	.57 0	3.16 .02	3.71 .01	3.56 .81	3.70 .64	1.23 T	2.76 T	.33 0	.03 0	.93 0	20.82 1.48
1946 P Q	.60 0	T 0	1.61 0	.20 0	2.79 0	2.84 0	3.28 .02	4.06 .16	5.84 1.07	4.17 .47	1.94 .41	0 0	27.33 2.13
1947 P Q	.27 0	.10 0	.43 0	3.58 .15	2.72 * .07	5.53 .80	1.56 .07	1.09 0	.29 0	.39 0	1.24 0	1.00 0	18.20 1.09
1948 P Q	.09 0	1.06 0	.45 * .50	.46 0	1.62 0	3.89 .09	4.39 .44	.99 T	.95 0	.70 0	1.20 0	.22 0	16.02 1.03
1949 P Q	.81 0	.49 0	1.64 .01	1.99 0	5.74 1.75	6.77 2.14	4.07 .61	.97 0	1.73 0	3.06 .66	0 0	.18 0	27.45 5.17
1950 P Q	T 0	.41 0	.23 0	.61 0	4.03 .42	1.97 * .26	4.91 1.05	2.17 .03	4.91 *1.94	1.34 .46	.50 0	0 0	21.08 4.16
1951 P Q	.38 0	1.55 T	1.18 T	3.08 0	3.28 0	9.71 3.87	5.97 2.49	3.38 T	3.41 .05	1.89 .01	.49 0	.12 0	34.44 6.42
1952 P Q	.23 0	.54 0	1.56 0	2.54 .03	2.86 .30	4.72 .58	5.67 1.40	1.10 0	.43 0	0 0	.71 0	.72 0	21.08 2.31
1953 P Q	.10 0	.73 0	.92 0	1.95 .04	3.03 .44	3.11 .98	1.28 0	1.90 .05	1.38 0	.73 0	2.45 0	1.20 0	18.78 1.51
1954 P Q	.04 0	.33 0	.27 0	1.76 0	6.24 1.94	1.17 0	.93 0	3.97 .09	1.47 .02	1.82 .04	.01 0	.47 0	18.48 2.09
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.29 T	.51 .02	.83 .04	2.28 .03	3.35 .46	4.72 1.04	2.89 .45	2.58 .09	2.28 .29	1.35 .11	.86 .03	.49 0	22.43 2.56
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan. Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



4-56

## HASTINGS, NEBRASKA Watershed 10-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 3.98 ac.

SHAPE: Triangular, 450 ft., 550 ft., and 650 ft. sides.

SLOPES: 5% is in 0-2% class; 60% in 2-5%; 35% in 5-8%. Aspect NE.

SOILS: Loessial. Topsoil - 84% silt loam texture, medium to fine crumb structure, 16% silty clay loam texture, medium to fine granular structure; 75% is 8-12 in. thick, 9% is 5-8 in. thick, 5% is 3-5 in. thick and 11% is 0-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 84%, Hastings silty clay loam - 16%.

EROSION: 1 - 75%; 2 - 9%; 3 - 16%.

LAND CAPABILITY: II - 2%; III - 93%; IV - 5%.

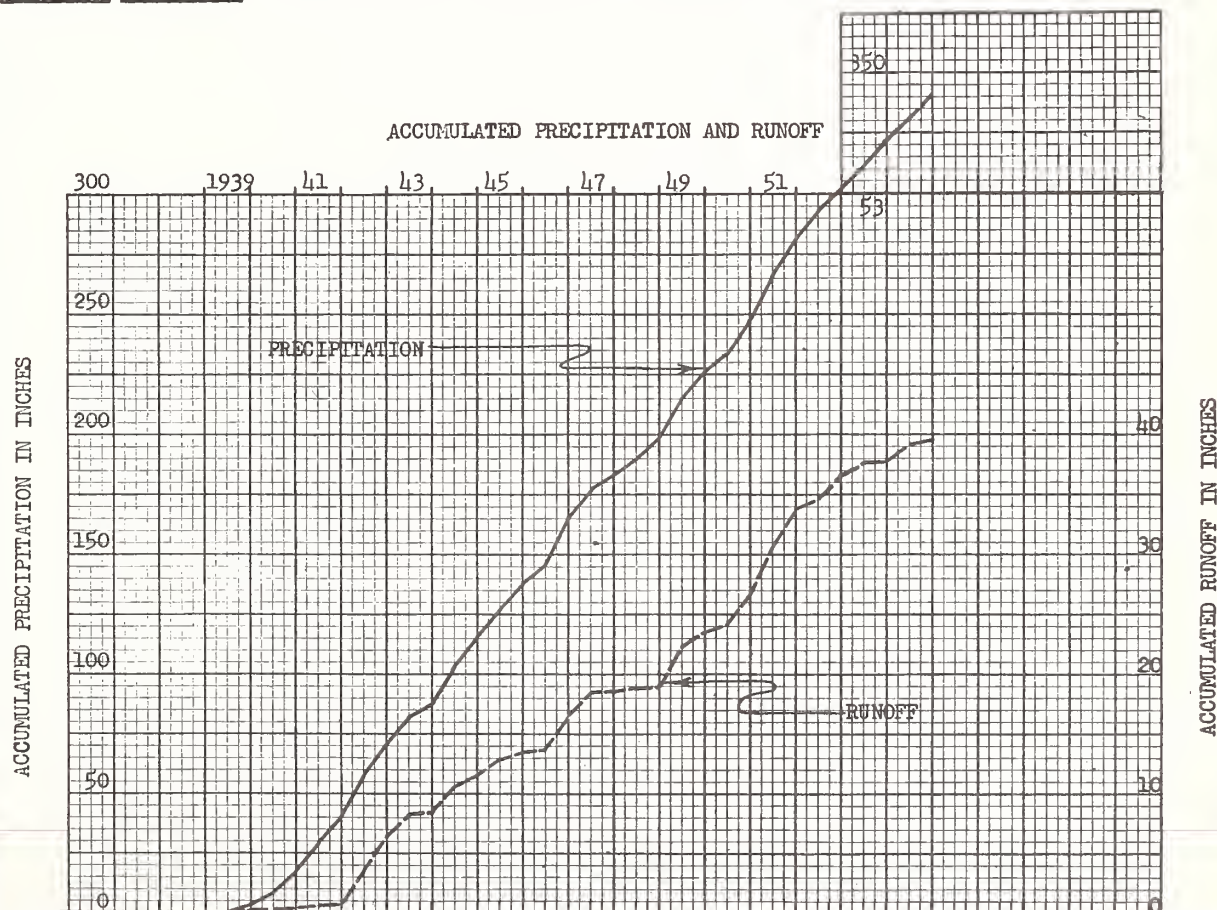
SURFACE DRAINAGE: Good; length of principal waterway - 520 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939-42 - corn, oats, wheat, corn, alternately on the contour and in straight rows; 1943-44 - strip cropped with corn and oats on the contour; 1945-54 - a corn, oats, wheat rotation - stubble mulch farmed.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



Cooperative Research Project of USDA and Nebraska Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Hastings, Nebraska, Watershed 10-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.35 0	1.89 0	4.05 .04	1.30 0	2.33 .03	0.02 0	0.44 0	0 0	0.19 0	12.57 .07
1940 P Q	0.13 0	0.21 0	0.52 0	1.07 0	2.30 .01	1.37 .02	.35 0	1.44 0	1.42 0	1.09 0	1.44 0	.50 0	11.84 .03
1941 P Q	.42 .01	.38 0	.16 .03	3.52 .01	1.87 .01	8.00 .28	1.46 0	2.84 T	2.43 0	2.90 0	.95 0	.69 0	25.62 .34
1942 P Q	.11 0	.53 0	1.82 T	3.38 0	2.75 0	8.18 3.33	1.86 .01	4.35 1.14	6.36 1.45	.36 0	.13 0	1.06 0	30.89 5.93
1943 P Q	0 .02	.70 * .24	.17 0	2.42 * .10	1.67 T	6.19 1.50	2.21 0	1.38 0	.05 0	.60 0	.10 0	.13 0	15.62 1.86
1944 P Q	.88 0	.19 0	.88 T	4.44 .28	5.70 1.49	3.73 .63	1.71 0	7.81 .61	.79 .01	.85 T	1.67 0	.08 0	28.73 3.02
1945 P Q	.36 0	.48 0	.57 0	3.16 .20	3.71 .38	3.56 1.17	3.70 .61	1.23 .01	2.76 T	.33 0	.03 0	.93 T	20.82 2.37
1946 P Q	.60 0	T .10	1.61 .02	.20 0	2.79 T	2.84 .01	3.28 .03	4.06 .29	5.84 1.35	4.17 * .70	1.94 * .36	0 0	27.33 2.86
1947 P Q	.27 0	.10 0	.43 0	3.58 * .30	2.72 .12	5.53 1.54	1.56 .09	1.09 0	.29 0	.39 0	1.24 0	1.00 0	18.20 2.05
1948 P Q	.09 0	1.06 0	.45 * .30	.46 0	1.62 0	3.89 .14	4.39 .05	.99 0	.95 0	.70 0	1.20 0	.22 0	16.02 .49
1949 P Q	.81 0	.49 0	1.64 .01	1.99 0	5.74 1.51	6.77 2.12	4.07 .65	.97 0	1.73 0	3.06 .37	0 0	.18 0	27.45 .466
1950 P Q	T 0	.41 0	.23 0	.61 0	4.03 .22	1.97 .19	4.91 .94	2.17 .01	4.91 1.51	1.34 .26	.50 0	0 0	21.08 3.13
1951 P Q	.38 0	1.55 .04	1.18 T	3.08 .05	3.28 .08	9.71 3.71	5.97 2.99	3.38 .03	3.41 .23	1.89 .01	.49 0	.12 0	34.44 7.14
1952 P Q	.23 0	.54 0	1.56 0	2.54 .06	2.86 .24	4.72 .43	5.67 2.15	1.10 0	.43 0	0 0	.71 0	.72 0	21.08 2.88
1953 P Q	.10 0	.73 0	.92 0	1.95 .03	3.03 .17	3.11 .69	1.28 0	1.90 T	1.38 0	.73 0	2.45 0	1.20 0	18.78 .89
1954 P Q	.04 0	.33 0	.27 0	1.76 0	6.24 1.51	1.17 0	.93 0	3.97 .05	1.47 T	1.82 .02	.01 0	.47 0	18.48 1.58
P Q													
P Q													
P Q													
**Av. P **Av. Q	.29 T	.51 .03	.83 .02	2.28 .07	3.35 .38	4.72 1.05	2.89 .50	2.58 .14	2.28 .30	1.35 .09	.86 .02	.49 T	22.43 2.60
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 3.85 ac.

SHAPE: Oval shaped, 400 ft. wide, 600 ft. long.

SLOPES: 16% is in 0-2% class; 37% in 2-5%; 42% in 5-8%; 5% in 8-12%. Aspect S.

SOILS: Loessial. Topsoil - 60% silt loam texture, medium to fine crumb structure, 40% silty clay loam texture, medium to fine granular structure; 24% is 8-12 in. thick, 36% is 5-8 in. thick, 39% is 3-5 in. thick and 1% is 0-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 60%; Hastings silty clay loam - 40%.

EROSION: 1 - 24%; 2 - 36%; 3 - 40%.

LAND CAPABILITY: II - 16%; III - 59%; IV - 20%; VI - 5%.

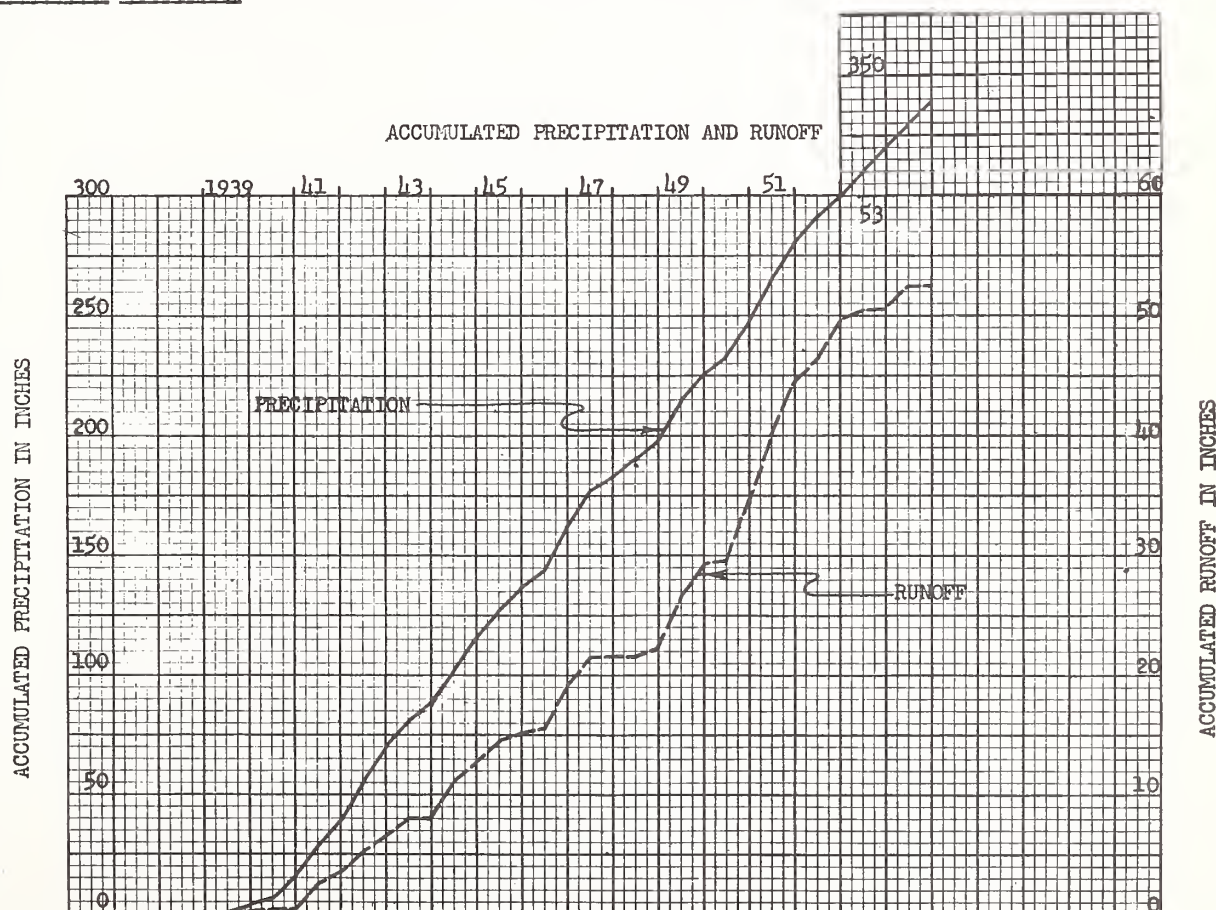
SURFACE DRAINAGE: Good; length of principal waterway - 600 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939-42 - oats, wheat, corn, oats alternately in straight rows and on the contour; 1943-44 - strip cropped with corn and oats on the contour; 1945 - oats; 1946-54 - a corn, oats, wheat rotation; 1945-54 - stubble mulch farmed.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Hastings, Nebraska, Watershed 11-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.35 0	1.89 0	4.05 .12	1.30 0	2.33 .02	0.02 0	0.44 0	0 0	0.19 0	12.57 .14
1940 P Q	0.13 0	0.21 0	0.52 0	1.07 0	2.30 .11	1.37 .14	.35 0	1.44 0	1.42 0	1.09 0	1.44 0	0.50 0	11.84 .25
1941 P Q	.42 0	.38 0	.16 T	3.52 .03	1.87 0	8.00 2.43	1.46 0	2.84 .03	2.43 .02	2.90 .53	.95 .11	.69 0	25.62 3.15
1942 P Q	.11 .10	.53 0	1.82 .17	3.38 .02	2.75 0	8.18 1.41	1.86 T	4.35 .53	6.36 .49	.36 0	.13 0	1.06 0	30.89 2.72
1943 P Q	0 0	.70 .07	.17 0	2.42 .10	1.67 .01	6.19 1.92	2.21 T	1.38 0	.05 0	.60 0	.10 0	.13 0	15.62 2.10
1944 P Q	.88 0	.19 0	.88 T	4.44 .60	5.70 1.83	3.73 .77	1.71 0	7.81 1.46	.79 .02	.85 T	1.67 0	.08 0	28.73 4.68
1945 P Q	.36 0	.48 0	.57 0	3.16 .22	3.71 .63	3.56 1.19	3.70 .48	1.23 T	2.76 0	.33 0	.03 0	.93 0	20.82 2.52
1946 P Q	.60 0	T 0	1.61 0	.20 0	2.79 0	2.84 .18	3.28 .18	4.06 .77	5.84 1.59	4.17 .56	1.94 * .30	0 0	27.33 3.58
1947 P Q	.27 0	.10 0	.43 0	3.58 .66	2.72 .04	5.53 1.73	1.56 .02	1.09 0	.29 0	.39 0	1.24 0	1.00 0	18.20 2.45
1948 P Q	.09 0	1.06 0	.45 * .20	.46 0	1.62 0	3.89 .02	4.39 .62	.99 T	.95 0	.70 0	1.20 0	.22 0	16.02 .84
1949 P Q	.81 0	.49 0	1.64 .02	1.99 T	5.74 1.90	6.77 2.37	4.07 1.18	.97 0	1.73 .01	3.06 1.48	0 0	.18 0	27.45 6.96
1950 P Q	T 0	.41 0	.23 0	.61 0	4.03 .34	1.97 .15	4.91 .97	2.17 0	4.91 2.62	1.34 .77	.50 0	0 0	21.08 4.85
1951 P Q	.38 0	1.55 0	1.18 0	3.08 .35	3.28 * .91	9.71 5.34	5.97 *3.04	3.38 .14	3.41 .58	1.89 .05	.49 0	.12 0	34.44 10.41
1952 P Q	.23 0	.54 0	1.56 0	2.54 .16	2.86 .15	4.72 1.72	5.67 2.71	1.10 0	.43 0	0 0	.71 0	.72 0	21.08 4.74
1953 P Q	.10 0	.73 0	.92 0	1.95 T	3.03 .27	3.11 .85	1.28 0	1.90 0	1.38 0	.73 0	2.45 0	1.20 0	18.78 1.12
1954 P Q	.04 0	.33 0	.27 0	1.76 .19	6.24 1.87	1.17 0	.93 0	3.97 .11	1.47 0	1.82 .01	.01 0	.47 0	18.48 2.18
P Q													
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.29 .01	.51 T	.83 .03	2.28 .16	3.35 .54	4.72 1.35	2.89 .61	2.58 .20	2.28 .36	1.35 .23	.86 .03	.49 0	22.43 3.52
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 3.66 ac.

SHAPE: Oval shaped, 350 ft. wide, 580 ft. long.

SLOPES: 4% is in 0-2% class; 41% in 2-5%; 30% in 5-8%; 23% in 8-12%; 2% over 12%. Aspect SE.

SOILS: Loessial. Topsoil - 50% silt loam texture, medium to fine crumb structure, 50% silty clay loam texture, medium to fine granular structure; 26% is 8-12 in. thick, 24% is 5-8 in. thick, 36% is 3-5 in. thick and 14% is 1-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 50%; Hastings silty clay loam - 50%.

EROSION: 1 - 26%; 2 - 24%; 3 - 50%.

LAND CAPABILITY: II - 4%; III - 56%; IV - 29%; VI - 11%.

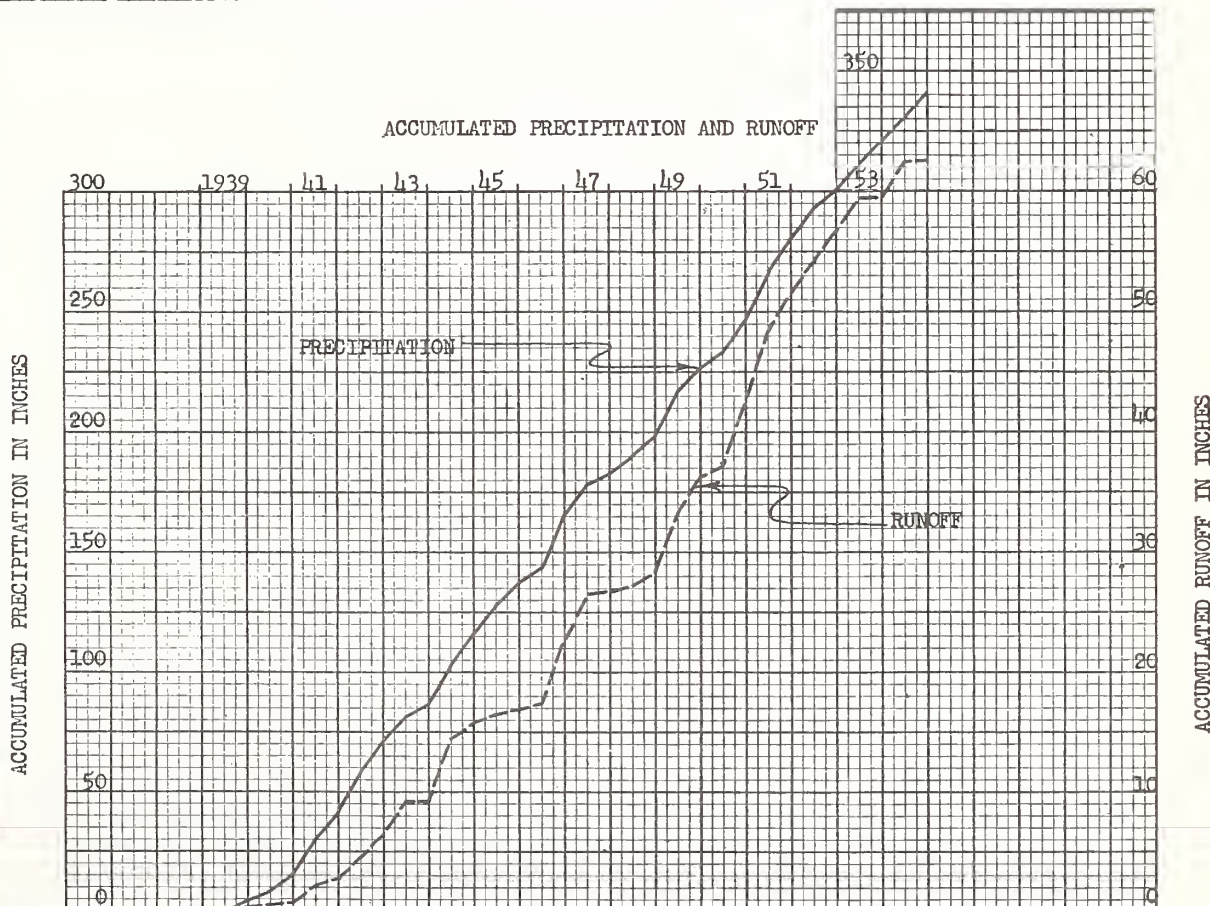
SURFACE DRAINAGE: Good; length of principal waterway - 600 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939 - oats; 1940-54 - a corn, oats, wheat rotation was followed; 1939-43 - farmed alternately on the contour and in straight rows; 1944-45 - farmed on the contour; 1946-54 - farmed in straight rows.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska, Watershed 12-H**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.35 0	1.89 0	4.05 .18	1.30 0	2.33 .20	0.02 0	0.44 0	0 0	0.19 0	12.57 .38
1940 P Q	0.13 0	0.21 .01	0.52 .16	1.07 0	2.30 0	1.37 .23	.35 0	1.44 0	1.42 T	1.09 0	1.44 T	.50 0	11.84 .40
1941 P Q	.42 .03	.38 .01	.16 .16	3.52 .08	1.87 .10	8.00 1.10	1.46 0	2.84 0	2.43 0	2.90 .57	.95 .14	.69 0	25.62 2.19
1942 P Q	.11 .17	.53 0	1.82 .10	3.38 .11	2.75 .02	8.18 1.50	1.86 .02	4.35 .72	6.36 1.20	.36 0	.13 0	1.06 0	30.89 3.84
1943 P Q	0 .14	.70 * .06	.17 T	2.42 .24	1.67 T	6.19 2.22	2.21 T	1.38 0	.05 0	.60 0	.10 0	.13 0	15.62 2.66
1944 P Q	.88 0	.19 T	.88 .07	4.44 1.66	5.70 2.64	3.73 .99	1.71 0	7.81 1.02	.79 0	.85 0	1.67 0	.08 0	28.73 6.38
1945 P Q	.36 0	.48 0	.57 0	3.16 * .07	3.71 .14	3.56 .64	3.70 .46	1.23 T	2.76 T	.33 0	.03 0	.93 T	20.82 1.31
1946 P Q	.60 0	T 0	1.61 T	.20 0	2.79 0	2.84 .25	3.28 .45	4.06 .90	5.84 2.12	4.17 1.16	1.94 .73	0 0	27.33 5.61
1947 P Q	.27 0	.10 0	.43 0	3.58 .90	2.72 .45	5.53 2.51	1.56 .05	1.09 0	.29 0	.39 0	1.24 0	1.00 0	18.20 3.91
1948 P Q	.09 0	1.06 0	.45 * .25	.46 0	1.62 T	3.89 .27	4.39 1.34	.99 .01	.95 0	.70 0	1.20 0	.22 0	16.02 1.87
1949 P Q	.81 0	.49 0	1.64 .08	1.99 * .02	5.74 2.88	6.77 1.98	4.07 *1.23	.97 0	1.73 * .13	3.06 1.33	0 0	.18 0	27.45 7.65
1950 P Q	T 0	.41 0	.23 0	.61 0	4.03 .74	1.97 .26	4.91 *1.14	2.17 T	4.91 3.48	1.34 .91	.50 0	0 0	21.08 6.53
1951 P Q	.38 0	1.55 0	1.18 .10	3.08 .47	3.28 .81	9.71 4.46	5.97 2.81	3.38 .10	3.41 .55	1.89 T	.49 0	.12 0	34.44 9.30
1952 P Q	.23 0	.54 0	1.56 0	2.54 .10	2.86 .19	4.72 *1.92	5.67 *2.73	1.10 0	.43 0	0 0	.71 0	.72 0	21.08 4.94
1953 P Q	.10 0	.73 0	.92 0	1.95 .01	3.03 1.59	3.11 .93	1.28 0	1.90 0	1.38 0	.73 0	2.45 0	1.20 0	18.78 2.53
1954 P Q	.04 0	.33 0	.27 0	1.76 .30	6.24 2.75	1.17 .01	.93 0	3.97 .24	1.47 .01	1.82 .07	.01 0	.47 0	18.48 3.38
P													
Q													
P													
Q													
P													
Q													
P													
Q													
** Av. P ** Av. Q	.29 .02	.51 .01	.83 .06	2.28 .26	3.35 .82	4.72 1.28	2.89 .68	2.58 .20	2.28 .50	1.35 .27	.86 .06	.49 T	22.43 4.16
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

4-56

HASTINGS, NEBRASKA

Watershed 13-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 3.41 ac.

SHAPE: Rectangular, 360 ft. wide, 420 ft. long.

SLOPES: 2% is in 0-2% class; 31% in 2-5%; 57% in 5-8%; 10% in 8-12%. Aspect NE.

SOILS: Loessial; topsoil - silty clay loam texture, medium to fine crumb structure, 54% is 3-5 in. thick, 46% is 0-3 in. thick; subsoil - moderately slow permeability. Internal drainage - medium. Hastings silty clay loam.

EROSION: 3 - 100%.

LAND CAPABILITY: III - 33%; IV - 57%; VI - 10%.

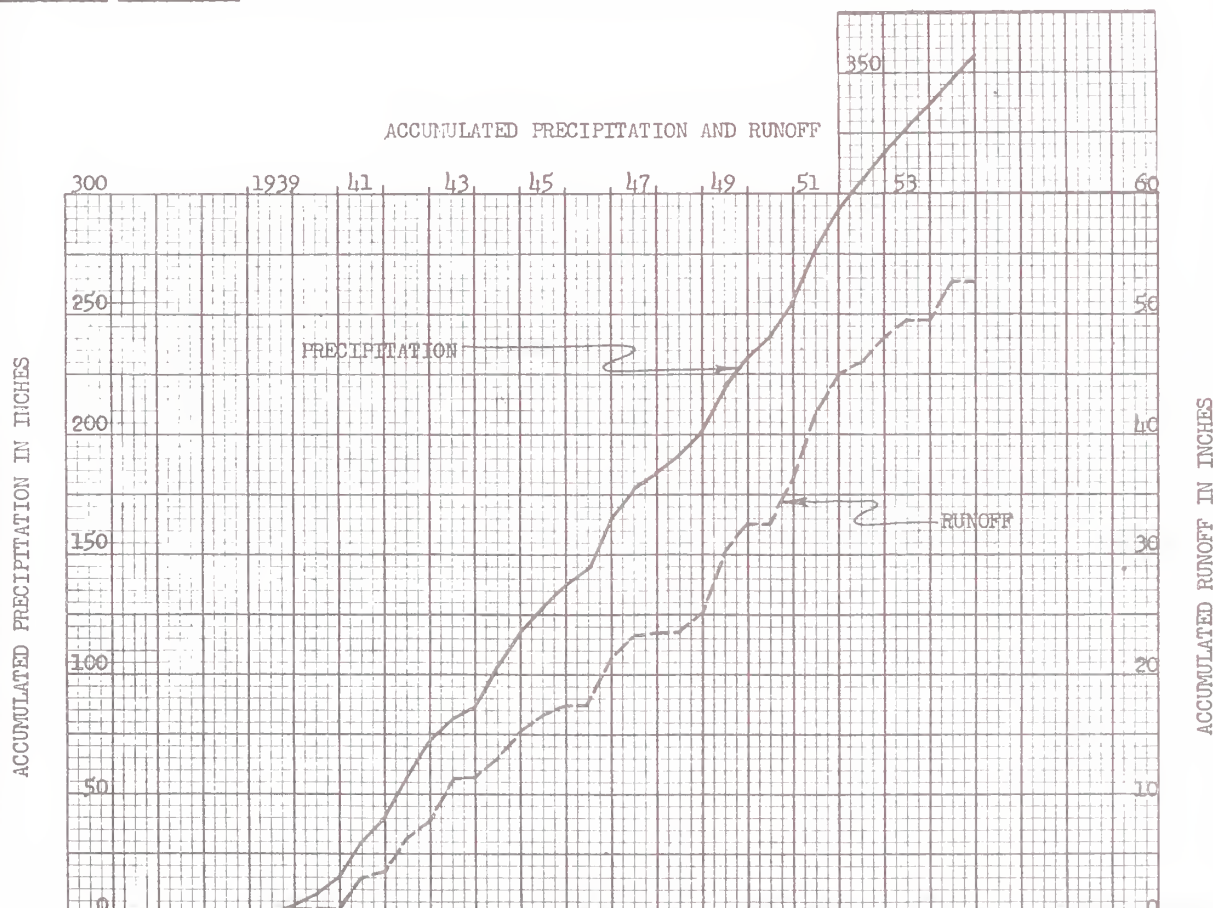
SURFACE DRAINAGE: Good; length of principal waterway - 470 ft.; a natural watershed with surface flow to a mild draw, earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939-40 - strip cropped with corn and oats on the contour; 1941-54 - a corn, oats, wheat rotation on the contour except in 1942 and 46 when the oats and wheat were straight row farmed.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.





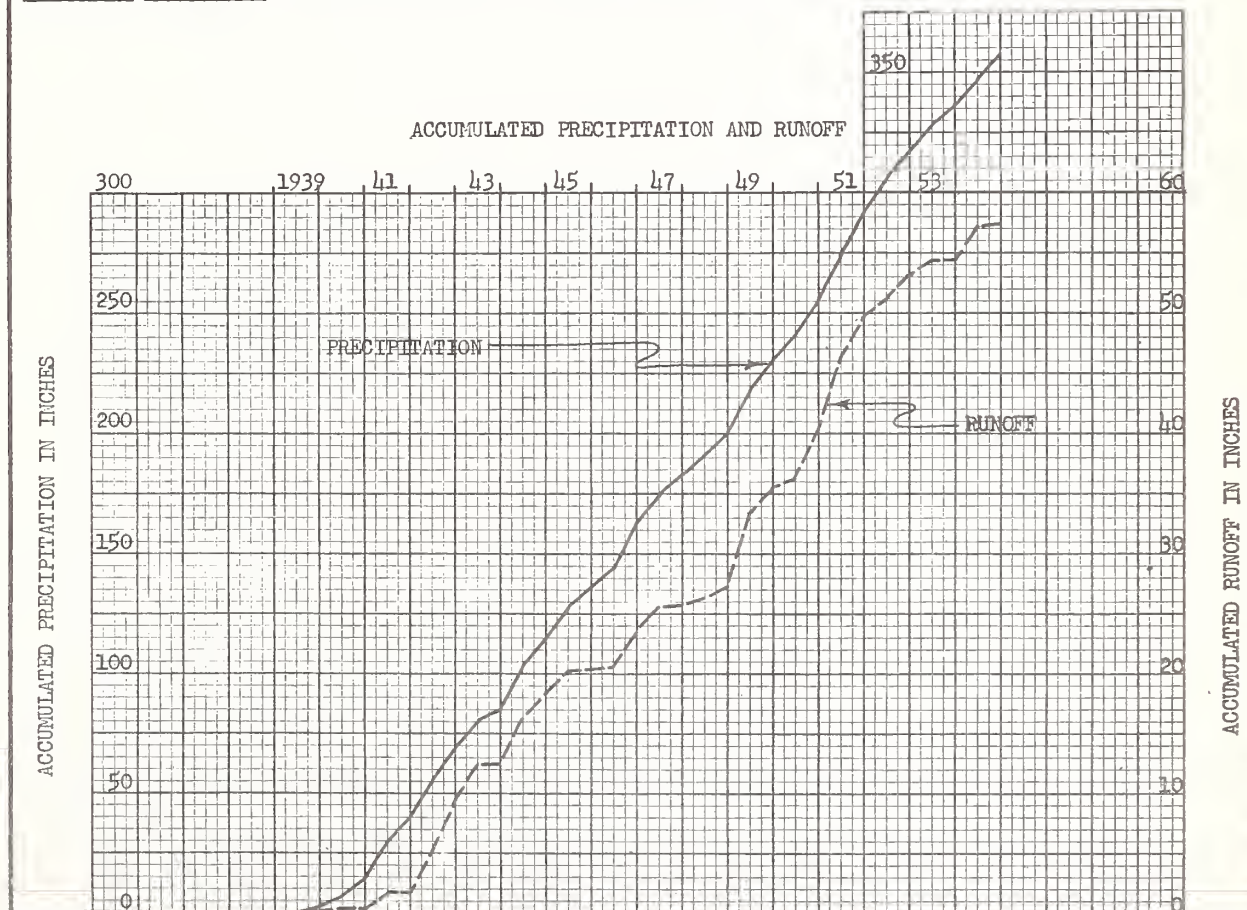
**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Hastings, Nebraska, Watershed 13-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.42 0	1.95 .01	3.61 .39	1.26 0	2.26 .21	0.02 0	0.46 0	0 0	0.27 0	12.25 .61
1940 P Q	0.16 0	0.25 0	0.59 0	1.12 0	2.06 .01	1.32 .16	.33 0	1.22 0	1.39 0	1.04 0	1.56 T	.41 0	11.45 .17
1941 P Q	.43 T	.37 0	.16 .05	3.60 .26	1.74 0	8.12 2.40	1.46 0	2.85 .04	2.43 .02	2.59 * .22	.96 .19	.73 0	25.44 3.18
1942 P Q	.02 .31	.54 0	1.73 .09	3.53 .19	2.72 .13	8.16 2.27	1.88 .01	4.41 .78	6.28 .18	.37 0	.13 0	1.19 0	30.96 3.96
1943 P Q	0 0	.72 * .06	.18 0	2.45 .66	1.79 .32	6.16 2.78	2.09 .03	1.46 T	.07 0	.56 0	.10 0	.15 0	15.73 3.85
1944 P Q	.93 0	.41 0	1.41 0	5.21 .03	5.82 * .96	3.73 .67	1.79 0	7.98 *2.19	.82 .13	.86 .03	1.60 0	.05 0	30.61 4.01
1945 P Q	.38 0	.49 0	.58 0	2.99 .01	3.82 .42	3.57 1.06	3.22 .43	1.26 .02	2.71 0	.32 0	.04 0	1.05 0	20.43 1.94
1946 P Q	.57 0	T .04	1.63 T	.18 0	2.81 T	2.71 .08	3.67 .13	4.05 .77	5.56 1.90	3.82 .94	1.93 .52	.02 0	26.95 4.38
1947 P Q	.31 0	.15 0	.50 0	3.66 .44	2.74 .01	5.32 1.35	1.87 .11	1.22 0	.38 0	.39 0	1.23 0	1.36 0	19.13 1.91
1948 P Q	.13 0	1.31 0	.55 * .10	.45 0	1.62 0	3.84 .16	4.66 1.13	.81 0	1.00 0	.72 0	1.27 0	.33 0	16.69 1.39
1949 P Q	1.08 0	.49 0	1.97 .01	2.27 0	6.45 2.32	7.49 2.82	4.18 1.16	1.17 0	1.98 .01	3.48 1.05	0 0	.22 0	30.78 7.37
1950 P Q	T 0	.61 0	.29 0	.93 0	4.49 .04	2.12 .14	5.24 1.07	2.38 .03	5.06 2.33	1.51 .64	.53 0	0 0	23.16 4.25
1951 P Q	.38 0	1.88 0	1.58 .06	3.54 .09	3.71 .48	10.73 5.03	6.63 2.89	3.72 T	3.69 0	2.05 T	.51 0	.13 0	38.55 8.55
1952 P Q	.24 0	.69 0	1.85 0	3.04 .01	3.14 .53	5.01 .63	6.02 1.80	.97 0	.44 0	0 0	.97 0	1.02 0	23.39 2.97
1953 P Q	.15 0	.82 0	1.14 0	2.06 0	3.64 * .35	3.51 *1.00	1.74 0	1.71 0	1.68 0	.82 0	2.79 0	1.39 0	21.45 1.35
1954 P Q	.04 0	.30 0	.28 0	2.13 .15	6.91 3.06	1.28 0	.93 0	4.19 .02	1.58 T	2.11 .06	.01 0	.50 0	20.26 3.29
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.32 .02	.60 .01	.96 .02	2.48 .12	3.56 .58	4.87 1.37	3.05 .58	2.63 .26	2.34 .30	1.38 .20	.91 .05	.57 0	23.67 3.51
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr., and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

4-56

HASTINGS, NEBRASKA Watershed 14-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.AREA: 3.35 ac.SHAPE: An isosceles triangle, 470 ft. sides, 600 ft. base.SLOPES: 41% is in 2-5% class; 46% in 5-8%; 13% in 8-12%. Aspect S.SOILS: Loessial; topsoil - silty clay loam texture, medium to fine crumb structure, 3-5 in. thick; subsoil - moderately slow permeability; internal drainage - medium. Hastings silty clay loam.EROSION: 3 - 100%.LAND CAPABILITY: III - 41%; IV - 46%; VI - 13%.SURFACE DRAINAGE: Good; length of principal waterway - 500 ft.; a natural watershed with surface flow to a mild draw; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1939-42 - corn, oats, wheat, corn alternately on the contour and in straight rows; 1943-44 - strip cropped with corn and oats on the contour. 1945 - 54 - an oats, wheat, corn rotation - stubble mulch farmed.GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.

Cooperative Research Project of USDA and Nebraska Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Hastings, Nebraska, Watershed 14-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.42 0	1.95 0	3.61 .23	1.26 0	2.26 .02	0.02 0	0.46 0	0 0	.27 0	12.25 .25
1940 P Q	0.16 0	0.25 .10	0.59 .05	1.12 0	2.06 .07	1.32 .01	.33 0	1.22 0	1.39 0	1.04 0	1.56 0	.41 0	11.45 .23
1941 P Q	.43 .02	.37 T	.16 .08	3.60 .26	1.74 .17	8.12 1.01	1.46 0	2.85 T	2.43 0	2.59 T	.96 T	.73 0	25.44 1.54
1942 P Q	.02 .04	.54 0	1.73 T	3.53 .03	2.72 0	8.16 3.57	1.88 .06	4.41 1.72	6.28 2.61	.37 0	.13 0	1.19 0	30.96 8.03
1943 P Q	0 .04	.72 .15	.18 0	2.45 .46	1.79 .04	6.16 1.98	2.09 0	1.46 0	.07 0	.56 0	.10 0	.15 0	15.73 2.67
1944 P Q	.93 0	.41 0	1.41 0	5.21 .47	5.82 2.44	3.73 .87	1.79 0	7.98 2.01	.82 .06	.86 .02	1.60 0	.05 0	30.61 5.87
1945 P Q	.38 0	.49 0	.58 0	2.99 .20	3.82 .50	3.57 .98	3.22 .19	1.26 T	2.71 T	.32 0	.04 0	1.05 T	20.43 1.87
1946 P Q	.57 .03	T 0	1.63 0	.18 0	2.81 T	2.71 .05	3.67 .19	4.05 .42	5.56 1.34	3.82 .77	1.93 .54	.02 0	26.95 3.34
1947 P Q	.31 0	.15 0	.50 0	3.66 .48	2.74 .01	5.32 1.84	1.87 .08	1.22 0	.38 0	.39 0	1.23 0	1.36 0	19.13 2.41
1948 P Q	.13 0	1.31 0	.55 * .30	.45 0	1.62 0	3.84 .03	4.66 .80	.81 0	1.00 0	.72 0	1.27 0	.33 0	16.69 1.13
1949 P Q	1.08 0	.49 0	1.97 0	2.27 0	6.45 3.27	7.49 3.21	4.18 1.04	1.17 0	1.98 .01	3.48 1.07	0 0	.22 0	30.78 8.60
1950 P Q	T 0	.61 0	.29 0	.93 0	4.49 .01	2.12 .35	5.24 1.38	2.38 .05	5.06 2.18	1.51 .54	.53 0	0 0	23.16 4.51
1951 P Q	.38 0	1.88 0	1.58 .07	3.54 .07	3.71 .58	10.73 5.41	6.63 3.28	3.72 .02	3.69 .10	2.05 0	.51 0	.13 0	38.55 9.53
1952 P Q	.24 0	.69 0	1.85 0	3.04 .08	3.14 .49	5.01 * .77	6.02 2.04	.97 0	.44 0	0 0	.97 0	1.02 0	23.39 3.38
1953 P Q	.15 0	.82 0	1.14 0	2.06 0	3.64 .49	3.51 .87	1.74 0	1.71 0	1.68 0	.82 0	2.79 0	1.39 0	21.45 1.36
1954 P Q	.04 0	.30 0	.28 0	2.13 .12	6.91 2.56	1.28 0	.93 0	4.19 .01	1.58 0	2.11 .04	.01 0	.50 0	20.26 2.73
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.32 .01	.60 .02	.96 .03	2.48 .14	3.56 .71	4.87 1.40	3.05 .60	2.63 .28	2.34 .42	1.38 .16	.91 .04	.57 T	23.67 3.81
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

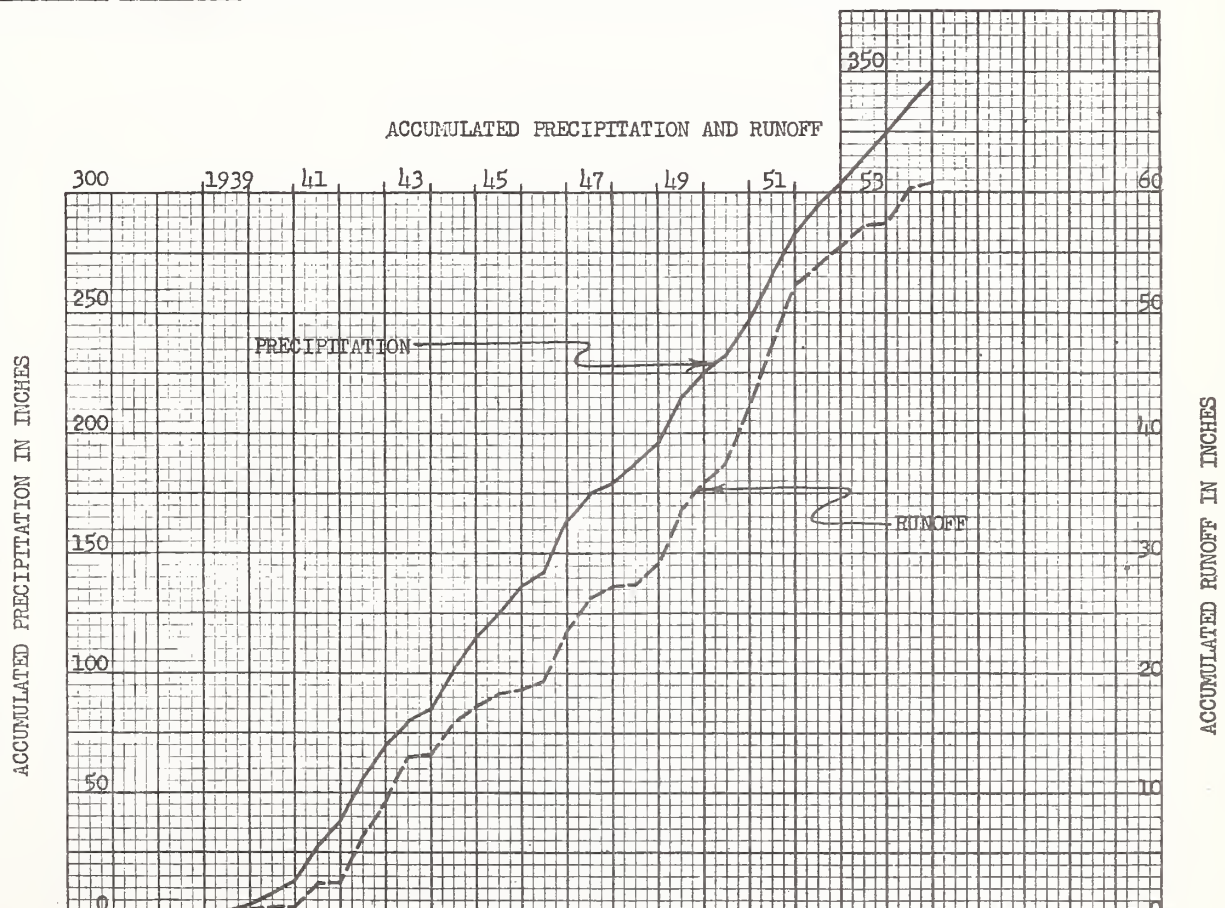
**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr., and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



4-56

HASTINGS, NEBRASKA

Watershed 15-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.AREA: 3.62 ac.SHAPE: Rectangular, 350 ft. wide, 500 ft. long.SLOPES: 3% is in 0-2% class; 23% in 2-5%; 62% in 5-8%; 11% in 8-12%; 1% over 12%. Aspect E.SOILS: Loessial. Topsoil - 44% silt loam texture, medium to fine crumb structure, 56% silty clay loam texture, medium to fine granular structure; 44% is 5-8 in. thick and 56% is 1-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 44%; Hastings silty clay loam - 48%; Nuckolls silty clay loam - 8%.EROSION: 2 - 44%; 3 - 56%.LAND CAPABILITY: III - 56%; IV - 37%; VI - 7%.SURFACE DRAINAGE: Good; length of principal waterway - 540 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1939-54 - a corn, oats, wheat rotation was followed; 1939-43 - alternately farmed in straight rows and on the contour; 1944-54 - farmed in straight rows except in 1946 when the oats was farmed on the contour.GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.

Cooperative Research Project of USDA and Nebraska Agricultural Experiment Station

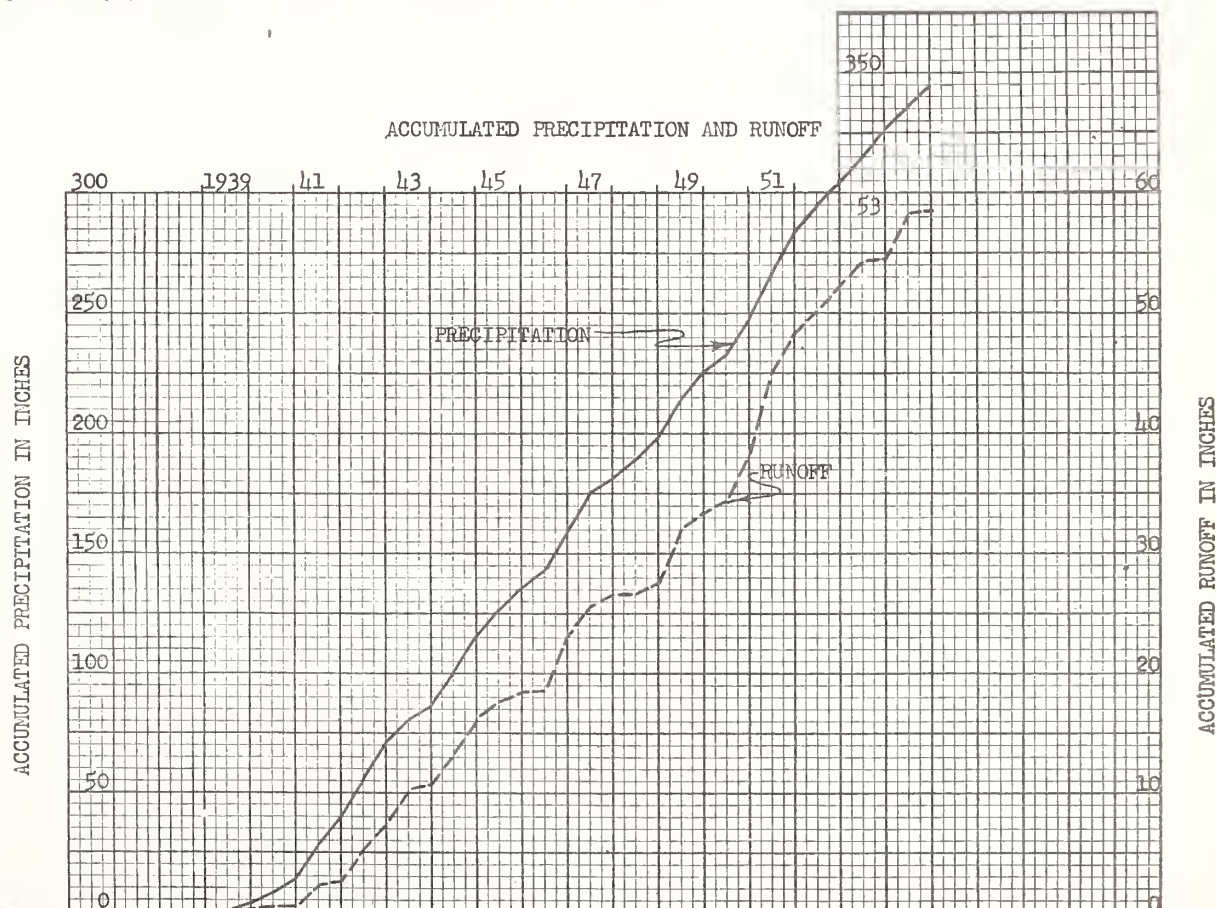
**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Hastings, Nebraska, Watershed 15-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.73 0	1.87 T	3.31 .46	1.17 0	2.08 .14	0.11 0	0.44 0	0 0	0.13 0	11.84 .60
1940 P Q	0.18 0	0.19 T	0.40 .03	1.01 0	1.84 T	1.38 .04	0.36 0	1.05 0	1.41 0	1.01 0	1.57 0	.47 0	10.87 .07
1941 P Q	.46 .02	.42 0	.17 .06	3.58 .16	1.96 .13	8.26 2.05	1.45 0	2.79 .02	2.46 0	2.26 .01	.88 .02	.69 0	25.38 2.47
1942 P Q	.06 .06	.48 0	1.72 .05	3.65 .05	2.72 0	8.52 3.32	1.90 .10	4.34 1.71	5.94 1.95	.39 0	.11 0	1.03 0	30.86 7.24
1943 P Q	0 .03	.72 .41	.13 .01	2.41 * .37	1.71 .16	6.22 *2.23	2.08 .02	1.46 .01	.08 0	.65 0	.09 0	.16 0	15.71 3.24
1944 P Q	.89 0	.11 0	.86 0	4.55 .14	5.80 1.96	3.77 .77	1.74 0	8.06 1.26	1.00 .15	.92 .02	1.61 0	.11 0	29.42 4.30
1945 P Q	.39 0	.53 0	.61 0	2.91 T	3.58 .04	3.38 1.00	3.20 .47	1.28 T	2.75 .01	.33 0	.03 0	1.15 T	20.14 1.52
1946 P Q	.49 .05	T .16	1.62 0	.23 0	2.84 0	2.84 T	3.47 .23	4.06 .47	5.59 1.93	3.85 1.05	1.93 .83	.02 0	26.94 4.72
1947 P Q	.25 0	.10 0	.43 0	3.52 .56	2.73 .47	5.34 1.95	1.78 .34	1.23 0	.33 0	.41 0	1.31 0	1.12 0	18.55 3.32
1948 P Q	.11 0	1.07 0	.41 * .50	.50 0	1.56 0	3.60 .37	4.55 1.30	.89 .01	1.06 0	.74 0	1.21 0	.36 0	16.06 2.18
1949 P Q	.91 0	.50 0	1.82 .04	2.04 0	5.85 2.06	7.34 2.70	4.12 1.02	1.12 0	1.88 0	3.26 1.09	0 0	.17 0	29.01 6.91
1950 P Q	.03 0	.53 0	.21 0	.68 0	4.20 .75	2.08 .96	5.20 1.86	2.42 .05	4.90 2.07	1.50 .31	.57 0	0 0	22.32 6.00
1951 P Q	.38 0	1.73 0	1.16 T	3.36 * .02	3.46 * .02	10.29 5.57	6.24 3.65	3.30 .57	3.49 .78	1.82 .03	.52 0	.10 0	35.85 10.64
1952 P Q	.21 0	.56 0	1.68 0	2.71 .03	2.93 .30	4.77 .99	5.65 1.75	1.00 0	.42 0	0 0	.83 0	.72 0	21.48 3.07
1953 P Q	.10 0	.75 0	.97 0	2.01 .02	3.53 .75	3.42 .93	1.72 0	1.65 0	1.60 .01	.82 0	2.56 0	1.30 0	20.43 1.71
1954 P Q	.04 0	.25 0	.28 0	1.73 .10	6.91 2.79	1.23 0	.93 0	4.08 .14	1.66 .17	2.00 .21	.01 0	.48 0	19.60 3.41
P Q													
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.30 .01	.53 .04	.83 .05	2.33 .10	3.44 .63	4.83 1.53	2.96 .72	2.58 .28	2.30 .47	1.33 .18	.88 .06	.53 T	22.84 4.07
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Febr., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

4-56

## HASTINGS, NEBRASKA Watershed 16-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.AREA: 3.57 ac.SHAPE: Oval shaped, 300 ft. wide, 550 ft. long.SLOPES: 2% is in 0-2% class; 61% in 2-5%; 32% in 5-8%; 4% in 8-12%; 1% over 12%. Aspect SE.SOILS: Loessial. Topsoil - 36% silt loam texture, medium to fine crumb structure, 64% silty clay loam texture, medium to fine granular structure; 36% is 8-12 in. thick, 41% is 3-5 in. thick and 23% is 1-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 36%; Hastings silty clay loam - 64%.EROSION: 1 - 36%; 3 - 64%.LAND CAPABILITY: III - 73%; IV - 23%; VI - 4%.SURFACE DRAINAGE: Good; length of principal waterway - 560 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1939 - oats on the contour; 1940 - wheat in straight rows; 1941-42 - strip cropped with corn and oats on the contour; 1943-54 - in a wheat, corn, oats rotation farmed in straight rows except in 1946 when the wheat was on the contour.GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



## MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska, Watershed 15-n

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.73 0	1.87 T	3.31 .21	1.17 .01	2.08 0	0.11 0	0.44 0	0 0	0.13 0	11.84 .22
1940 P Q	0.18 0	0.19 0	0.40 0	1.01 0	1.84 .12	1.38 .28	0.36 0	1.05 0	1.41 0	1.01 0	1.57 0	0.47 0	10.87 .40
1941 P Q	.46 T	.42 0	.17 .02	3.58 .22	1.96 .07	8.26 1.56	1.45 0	2.79 .06	2.46 .01	2.26 .07	.88 .02	.69 0	25.38 2.03
1942 P Q	.06 .23	.48 0	1.72 .03	3.65 .07	2.72 .05	8.52 2.98	1.90 .02	4.34 .99	5.94 1.15	.39 0	.11 0	1.03 0	30.86 5.52
1943 P Q	0 0	.72 .02	.13 T	2.41 .27	1.71 .11	6.22 *2.23	2.08 .03	1.46 T	.08 0	.65 0	.09 0	.16 0	15.71 2.66
1944 P Q	.89 C	.11 0	.86 T	4.55 .22	5.80 1.96	3.77 1.13	1.74 0	8.06 1.87	1.00 .29	.92 .12	1.61 0	.11 0	29.42 5.59
1945 P Q	.39 0	.53 0	.61 0	2.91 .02	3.58 .55	3.38 1.18	3.20 .48	1.28 * .04	2.75 T	.33 0	.03 0	1.15 T	20.14 2.27
1946 P Q	.49 0	T 0	1.62 0	.23 0	2.84 .01	2.84 .16	3.47 .35	4.06 .76	5.59 1.91	3.85 .99	1.93 .53	.02 0	26.94 4.71
1947 P Q	.25 0	.10 0	.43 0	3.52 .50	2.73 .02	5.34 2.25	1.78 .27	1.23 0	.33 0	.41 0	1.31 0	1.12 0	18.55 3.04
1948 P Q	.11 0	1.07 0	.41 * .40	.50 0	1.56 0	3.60 .05	4.55 .99	.89 0	1.06 0	.74 0	1.21 0	.36 0	16.06 1.44
1949 P Q	.91 0	.50 0	1.82 * .06	2.04 0	5.85 2.06	7.34 *2.46	4.12 .89	1.12 0	1.88 T	3.26 .84	0 0	.17 0	29.01 6.31
1950 P Q	.03 0	.53 0	.21 0	.68 0	4.20 .03	2.08 .24	5.20 1.35	2.42 .13	4.90 2.56	1.50 .66	.57 0	0 0	22.32 4.97
1951 P Q	.38 0	1.73 .32	1.16 .08	3.36 .06	3.46 .39	10.29 5.58	6.24 3.31	3.30 .02	3.49 .04	1.82 T	.52 0	.10 0	35.85 9.80
1952 P Q	.21 0	.56 0	1.68 0	2.71 .01	2.93 .52	4.77 .88	5.65 2.12	1.00 0	.42 0	0 0	.83 0	.72 0	21.48 3.53
1953 P Q	.10 0	.75 0	.97 0	2.01 T	3.53 .83	3.42 1.10	1.72 .02	1.65 .02	1.60 .01	.82 0	2.56 .03	1.30 0	20.43 2.01
1954 P Q	.04 0	.25 0	.28 0	1.73 .33	6.91 3.80	1.23 0	.93 0	4.08 .02	1.66 T	2.00 .28	.01 0	.48 0	19.60 4.43
P Q													
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.30 .02	.53 .02	.83 .04	2.33 .11	3.44 .70	4.83 1.47	2.96 .66	2.58 .26	2.30 .40	1.33 .20	.88 .04	.53 T	22.84 3.92
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 3.96 ac.

SHAPE: An equilateral triangle, 500 ft. sides.

SLOPES: 3% is in 0-2% class; 27% in 2-5%; 38% in 5-8%; 27% in 8-12%; 5% over 12%. Aspect NE.

SOILS: Loessial. Topsoil - 40% silt loam texture, medium to fine crumb structure, 60% silty clay loam texture, medium to fine granular structure; 40% is 5-8 in. thick, 7% is 3-5 in. thick and 53% is 0-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 40%; Hastings silty clay loam - 28%; Nuckolls - Holdrege silty clay loam - 32%.

EROSION: 2 - 40%; 3 - 60%.

LAND CAPABILITY: III - 35%; IV - 43%; VI - 22%.

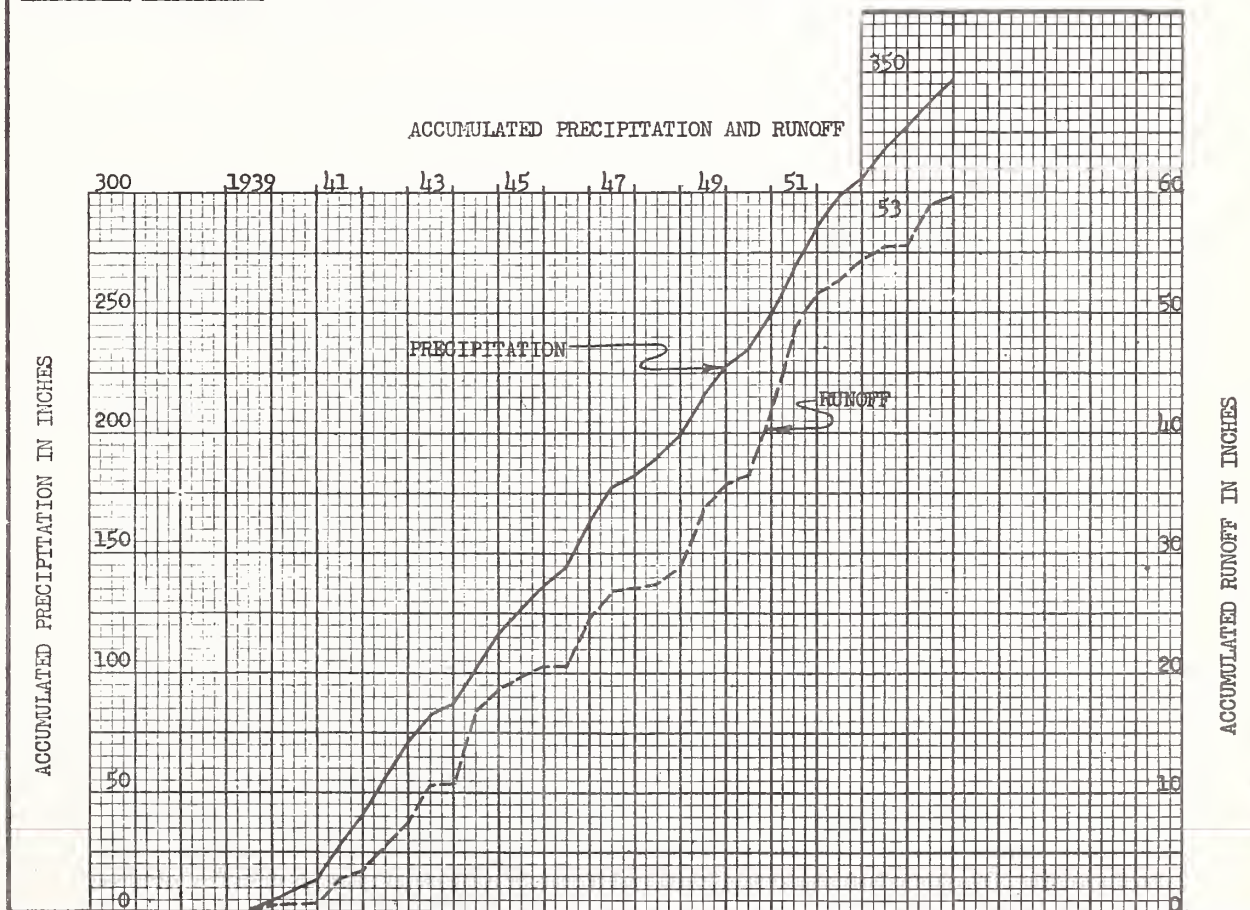
SURFACE DRAINAGE: Good; length of principal waterway - 500 ft.; a natural watershed with surface flow to 2 forks uniting about 150 ft. above the flume to form a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1939-42 - oats, corn, oats wheat farmed alternately in straight rows and on the contour; 1943-45 - corn, oats, wheat rotation in straight rows; 1946-54 - in a corn, oats, wheat rotation farmed on the contour.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Hastings, Nebraska, Watershed 17-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q				2.73 0	1.87 .11	3.31 .66	1.17 .03	2.08 .44	0.11 0	0.44 0	0 0	0.13 0	11.84 1.24
1940 P Q	0.18 0	0.19 0	0.40 T	1.01 0	1.84 T	1.38 .01	.36 0	1.05 0	1.41 0	1.01 0	1.57 T	.47 0	10.87 .01
1941 P Q	.46 .04	.42 .03	.17 .09	3.58 .22	1.96 .30	8.26 1.76	1.45 0	2.79 .01	2.46 0	2.26 .12	.88 .06	.69 0	25.38 2.63
1942 P Q	.06 .01	.48 0	1.72 .01	3.65 .11	2.72 .04	8.52 2.14	1.90 .11	4.34 .96	5.94 .70	.39 0	.11 0	1.03 0	30.86 4.08
1943 P Q	0 0	.72 .07	.13 0	2.41 .23	1.71 T	6.22 3.04	2.08 .08	1.46 0	.08 0	.65 0	.09 0	.16 0	15.71 3.42
1944 P Q	.89 0	.11 0	.86 0	4.55 1.95	5.80 3.20	3.77 1.14	1.74 0	8.06 1.83	1.00 0	.92 0	1.61 0	.11 0	29.42 8.12
1945 P Q	.39 0	.53 0	.61 0	2.91 .02	3.58 .09	3.38 .78	3.20 .44	1.28 .02	2.75 .01	.33 0	.03 0	1.15 T	20.14 1.36
1946 P Q	.49 T	T 0	1.62 0	.23 0	2.84 0	2.84 .04	3.47 .39	4.06 1.09	5.59 1.69	3.85 .71	1.93 .42	.02 0	26.94 4.34
1947 P Q	.25 0	.10 0	.43 0	3.52 .48	2.73 .11	5.34 1.75	1.78 .15	1.23 0	.33 0	.41 0	1.31 0	1.12 0	18.55 2.49
1948 P Q	.11 0	1.07 0	.41 * .15	.50 0	1.56 0	3.60 .27	4.55 1.50	.89 .01	1.06 0	.74 0	1.21 0	.36 0	16.06 1.93
1949 P Q	.91 0	.50 0	1.82 .02	2.04 0	5.85 2.68	7.34 1.95	4.12 .54	1.12 0	1.88 .12	3.26 1.31	0 0	.17 0	29.01 6.62
1950 P Q	.03 0	.53 0	.21 0	.68 0	4.20 .54	2.08 .40	5.20 1.23	2.42 0	4.90 2.95	1.50 .85	.57 0	0 0	22.32 5.97
1951 P Q	.38 0	1.73 .01	1.16 .07	3.36 .31	3.46 .92	10.29 5.57	6.24 2.69	3.30 .06	3.49 .14	1.82 T	.52 0	.10 0	35.85 9.77
1952 P Q	.21 0	.56 0	1.68 0	2.71 .01	2.93 .01	4.77 1.11	5.65 1.78	1.00 0	.42 0	0 0	.83 0	.72 0	21.48 2.91
1953 P Q	.10 0	.75 0	.97 0	2.01 T	3.53 .37	3.42 .74	1.72 0	1.65 0	1.60 0	.82 0	2.56 0	1.30 0	20.43 1.11
1954 P Q	.04 0	.25 0	.28 0	1.73 .29	6.91 *3.20	1.23 T	.93 0	4.08 .17	1.66 .05	2.00 .15	.01 0	.48 0	19.60 3.86
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.30 T	.53 .01	.83 .02	2.33 .24	3.44 .76	4.83 1.38	2.96 .59	2.58 .28	2.30 .38	1.33 .21	.88 .03	.53 T	22.84 3.90
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1939. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



4-56

## HASTINGS, NEBRASKA Watershed 18-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Little Blue River Watershed; Kansas River Basin.

AREA: 3.74 ac.

SHAPE: An isosceles triangle, 550 ft. sides, 400 ft. base.

SLOPES: 4% is in 0-2% class; 37% in 2-5%; 52% in 5-8%; 6% in 8-12%; 1% over 12%. Aspect S.

SOILS: Loessial; topsoil - silt loam texture, medium to fine crumb structure, 79% is 8-12 in. thick, 21% is 5-8 in. thick; subsoil - moderately slow permeability; internal drainage - medium. Hastings silt loam.

EROSION: 1 - 79%; 2 - 21%.

LAND CAPABILITY: II - 4%; III - 89%; IV - 7%.

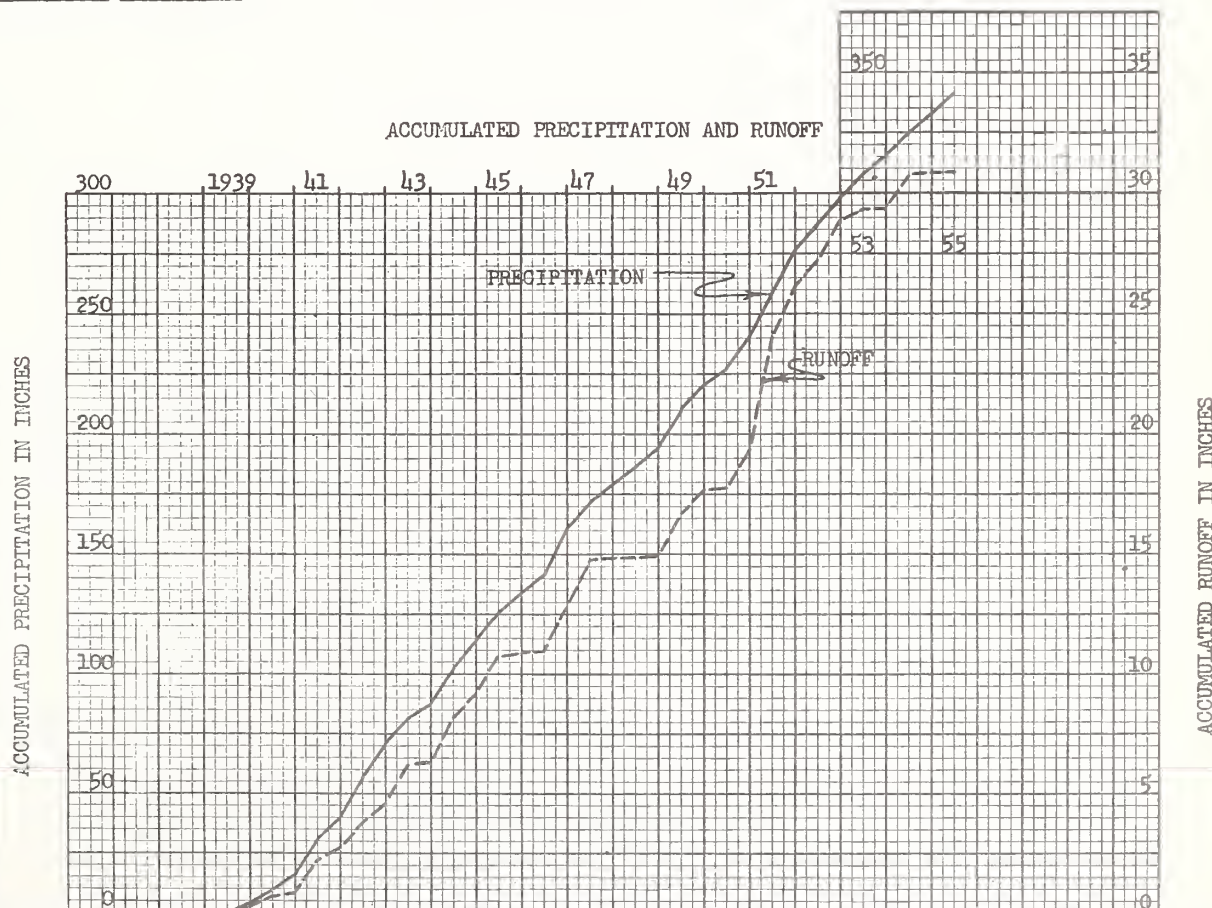
SURFACE DRAINAGE: Good; length of principal waterway - 530 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Native grass pasture, consisting mostly of buffalo grass and blue grama; 1939-40 - grass was poor due to drought, 1941 - fair, 1942-55 - very good to excellent.

GENERALLY REPRESENTS: Native grass pasture in Central Nebraska-Kansas Loess Plains.



Cooperative Research Project of USDA and Nebraska Agricultural Experiment Station.

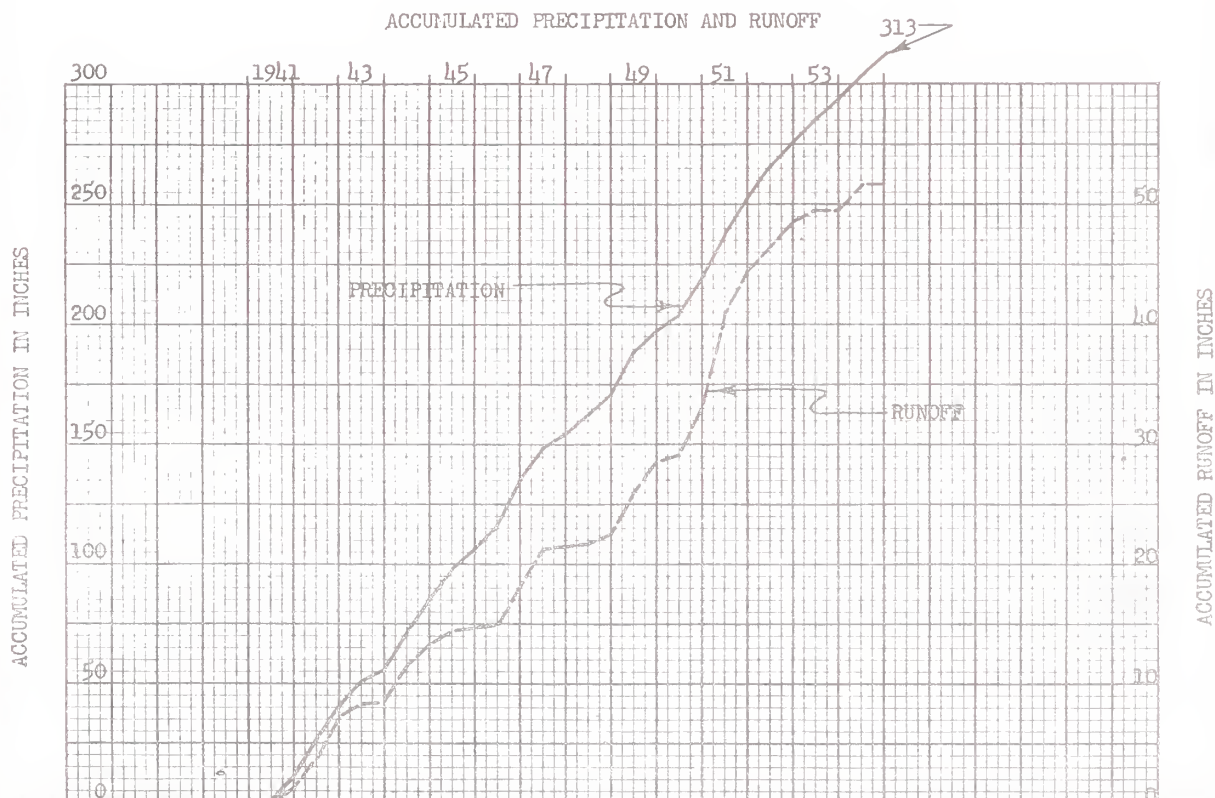
**MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska, Watershed 18-H**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q							1.53 0	2.42 .33	0.03 0	0.40 0	0 0	0.15 0	4.53 .33
1940 P Q	0.19 0	0.20 .05	0.44 .03	0.97 0	2.27 .14	1.36 .12	.33 0	1.67 T	1.53 .13	1.10 0	1.33 0	.38 0	11.77 .47
1941 P Q	.37 .09	.41 T	.16 .20	3.55 .01	1.90 .01	8.11 1.14	1.35 0	2.40 .02	2.35 0	2.74 .27	.97 T	.68 0	24.99 1.74
1942 P Q	.05 .06	.53 0	1.82 .04	3.69 .01	2.50 T	7.92 1.22	1.71 T	4.52 .21	6.48 .42	.32 0	.15 0	1.23 0	30.92 1.96
1943 P Q	0 0	.69 .34	.11 0	2.31 .10	1.73 .04	5.89 1.32	2.18 .03	1.43 0	.02 0	.57 0	.12 0	.14 0	15.19 1.83
1944 P Q	.94 0	.10 0	.75 .02	4.09 .19	5.67 1.36	3.66 .22	2.00 0	7.25 .98	.60 T	.78 0	1.37 .02	.04 0	27.25 2.79
1945 P Q	.26 0	.34 0	.47 0	3.03 .11	3.73 .30	3.57 1.10	3.50 * .24	1.29 T	2.31 T	.32 0	.04 0	.91 T	19.77 1.75
1946 P Q	.52 .03	T 0	1.45 0	.24 0	2.96 0	2.68 .01	3.50 .02	3.97 .52	5.64 .63	3.89 .29	1.82 .39	0 0	26.67 1.89
1947 P Q	.21 0	.12 0	.37 0	3.56 .37	2.66 .08	5.50 *1.56	1.65 .08	1.04 0	.33 0	.42 0	1.11 0	1.02 0	17.99 2.09
1948 P Q	.05 0	1.11 0	.42 0	.50 0	1.67 0	3.92 .01	3.96 .07	.78 T	1.13 0	.69 0	1.16 0	.32 0	15.71 .08
1949 P Q	.89 0	.41 0	1.59 0	2.09 0	5.78 .98	6.21 1.03	2.71 .05	1.05 0	1.64 0	3.10 .58	0 0	.17 0	25.64 2.64
1950 P Q	.01 0	.44 0	.23 0	.62 0	3.70 .03	1.95 .02	5.70 .34	2.08 .01	5.21 1.37	1.26 .04	.49 0	0 0	21.69 1.81
1951 P Q	.34 0	1.53 T	1.07 0	3.01 .04	3.90 .49	9.83 4.17	5.60 2.02	3.72 .12	3.13 .06	1.82 .02	.48 0	.06 0	34.49 6.92
1952 P Q	.20 0	.42 0	1.31 0	2.50 .01	2.99 .50	4.75 .50	5.75 1.40	1.55 0	.42 0	0 0	.71 0	.84 0	21.44 2.41
1953 P Q	.10 0	.75 0	1.14 0	2.07 T	2.90 .08	3.07 .58	1.22 0	1.28 0	1.38 0	.62 0	2.51 T	1.17 0	18.21 .66
1954 P Q	.04 0	.30 0	.26 0	1.63 T	6.10 1.28	1.05 0	1.00 0	4.17 .02	1.46 T	1.67 0	.01 0	.47 0	18.16 1.30
1955 P Q P Q P Q	.34 0    0	.23 0    0	.20 0    0	.57 0    0	2.90 .01    0	4.18 .03    0	1.03 0    0						9.45 .04
**Av. P **Av. Q	.28 .01	.49 .03	.77 .02	2.26 .06	3.36 .35	4.63 .87	2.81 .28	2.55 .13	2.24 .17	1.29 .08	.82 .03	.50 T	22.00 2.03
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part-year amounts for 1939 and 1955. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

4-56

## HASTINGS, NEBRASKA Watershed 19-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.AREA: 4.10 ac.SHAPE: A parallelogram, 360 ft. wide, 550 ft. long.SLOPES: 45% is in 2-5% class; 52% in 5-8%; 3% in 8-12%. Aspect S-SW.SOILS: Loessial. Topsoil - 5% silt loam texture, medium to fine crumb structure, 95% silty clay loam texture, medium to fine granular structure; 5% is 5-8 in. thick, 52% is 3-5 in. thick and 43% is 0-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 5%; Hastings silty clay loam - 95%.EROSION: 2 - 5%; 3 - 95%.LAND CAPABILITY: III - 41%; IV - 52%; VI - 7%.SURFACE DRAINAGE: Good; length of principal waterway - 515 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1941 - summer fallowed; 1942-54 - in a wheat, corn, oats rotation - stubble mulch farmed.GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Hastings, Nebraska, Watershed 19-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P				3.55	1.68	7.89	1.41	2.54	2.41	2.68	0.91	0.47	23.54
Q				.18	.01	2.55	0	.06	.05	.98	.18	.01	4.02
1942 P	0.03	0.49	1.77	3.75	2.62	7.98	1.62	4.50	6.46	.31	.06	1.07	30.66
Q	.29	0	.26	.31	0	1.66	T	1.22	2.30	0	0	0	6.04
1943 P	0	.65	.11	2.57	1.77	5.75	2.36	1.43	.08	.52	.10	.14	15.48
Q	0	.07	0	.01	T	.84	.02	0	0	0	0	0	.94
1944 P	.88	.15	.95	4.62	5.64	3.89	1.82	7.79	.67	.72	1.56	.05	28.74
Q	0	0	.03	.72	2.23	.65	0	1.46	0	0	0	0	5.09
1945 P	.32	.41	.58	3.31	4.23	3.86	3.73	1.11	3.01	.34	.04	.75	21.69
Q	0	0	0	.11	.16	.66	.38	0	.01	0	0	0	1.32
1946 P	.44	T	1.63	.21	2.82	2.96	3.60	4.14	6.32	4.17	2.12	.02	28.43
Q	T	0	0	0	0	.29	.25	.63	1.84	.74	.47	0	4.22
1947 P	.45	.16	.68	3.83	2.61	5.29	1.74	1.08	.32	.38	1.24	1.09	18.87
Q	0	0	0	.73	.05	1.83	.05	0	0	0	0	0	2.66
1948 P	.08	1.16	.38	.44	1.70	3.95	4.10	.85	1.10	.69	1.17	.31	15.93
Q	0	0	* .25	0	0	.08	.66	0	0	0	0	0	.99
1949 P	.74	.45	1.63	1.90	5.65	6.59	3.86	1.00	1.79	3.06	0	.19	26.86
Q	0	0	.02	0	1.79	2.27	* .99	0	.02	1.31	0	0	6.40
1950 P	.04	.53	.19	.71	3.80	1.88	5.10	2.24	5.41	1.34	.52	0	21.76
Q	0	0	0	0	.19	.16	1.10	0	2.47	.73	0	0	4.65
1951 P	.36	1.60	1.16	3.12	3.50	9.40	6.32	3.42	3.39	2.03	.50	.13	34.93
Q	0	0	.04	.49	1.26	5.50	3.03	.12	.55	.01	0	0	11.00
1952 P	.22	.65	1.54	2.65	3.00	4.37	5.67	.95	.39	0	.80	1.10	21.34
Q	0	0	0	.10	* .18	1.59	2.19	0	0	0	0	0	4.06
1953 P	.18	.76	.97	2.03	3.28	3.05	1.77	1.52	1.45	.72	2.65	1.36	19.74
Q	0	0	0	T	.27	.76	0	0	0	0	0	0	1.03
1954 P	.04	.30	.23	1.75	6.13	1.07	1.14	3.93	1.52	1.80	.01	.55	18.47
Q	0	0	0	.12	1.94	0	0	.09	0	T	0	0	2.15
P													
Q													
P													
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Q													
**Av. P	.29	.56	.91	2.38	3.60	4.62	3.29	2.61	2.45	1.24	.83	.52	23.30
**Av. Q	.02	.01	.05	.20	.62	1.25	.67	.27	.55	.21	.04	0	3.89
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1941. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

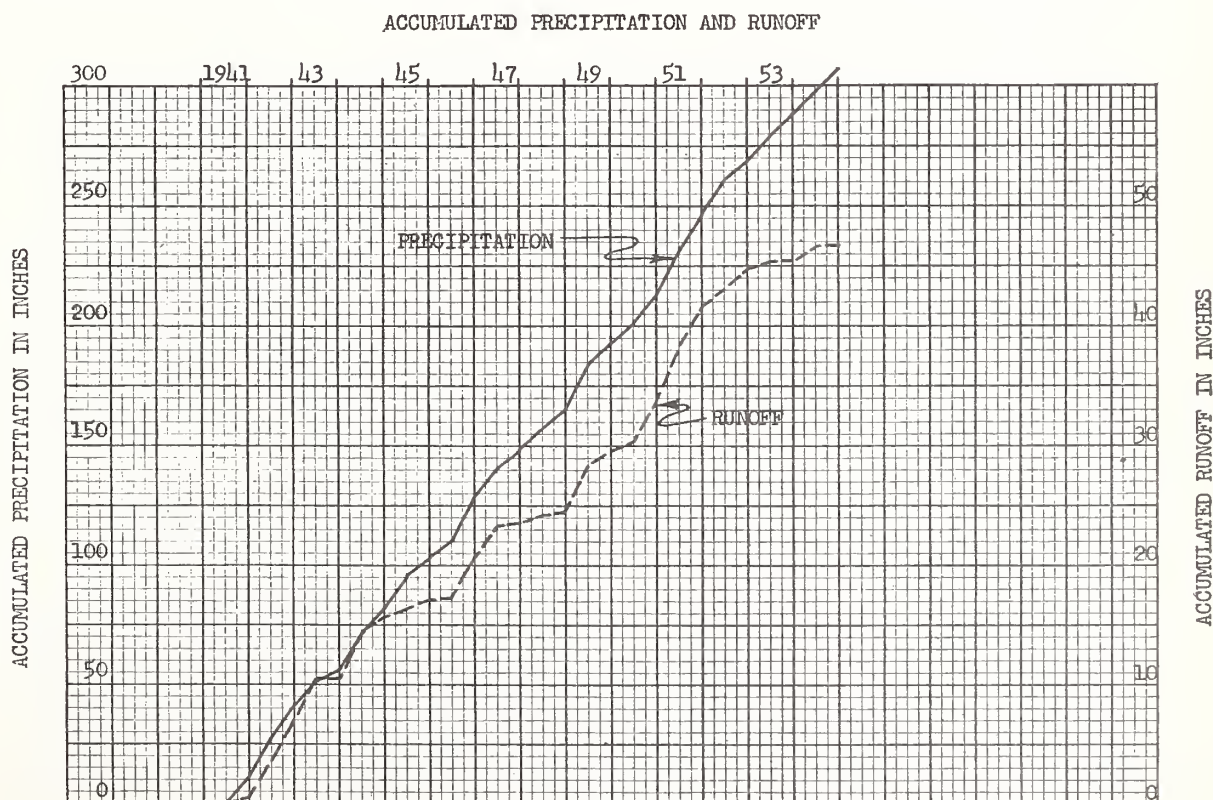
4-56

HASTINGS, NEBRASKA Watershed 20-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.AREA: 4.05 ac.SHAPE: Oval shaped, 400 ft. wide, 600 ft. long.SLOPES: 45% is in 2-5% class; 37% in 5-8%; 11% in 8-12%; 7% over 12%. Aspect W.

SOILS: Loessial. Topsoil - 44% silt loam texture, medium to fine crumb structure, 56% silty clay loam texture, medium to fine granular structure; 17% is 8-12 in. thick, 27% is 5-8 in. thick, 18% is 3-5 in. thick and 38% is 1-3 in. thick. Permeability of subsoil - 87% is moderately slow and 13% is moderate. Internal drainage - medium. Hastings silt loam - 31%; Hastings silty clay loam - 56%;

EROSION: 1 - 17%; 2 - 27%; 3 - 56%. Holdrege silt loam - 13%.

LAND CAPABILITY: III - 62%; IV - 29%; VI - 9%.SURFACE DRAINAGE: Good; length of principal waterway - 560 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1941 - oats; 1942-54 - in a corn, oats, wheat rotation; stubble mulch farmed.GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Hastings, Nebraska, Watershed 20-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P				3.51	1.80	7.76	1.55	2.69	2.42	2.59	0.92	0.52	23.76
Q				.01	.01	1.87	0	.01	0	.09	.06	0	2.05
1942 P	0.02	0.56	1.78	3.50	2.57	7.94	1.79	4.33	6.04	.33	.08	.92	29.86
Q	.18	0	.04	.12	.01	3.34	T	1.12	3.00	0	0	0	7.81
1943 P	0	.67	.04	2.35	1.74	6.12	2.26	1.41	.06	.58	.12	.12	15.47
Q	0	T	0	.36	.15	1.90	0	0	0	0	0	0	2.41
1944 P	.86	.08	.82	4.29	5.64	3.87	1.74	7.67	.71	.72	1.47	.06	27.93
Q	0	0	.05	.63	2.34	.83	0	1.02	.01	T	0	0	4.88
1945 P	.26	.41	.55	3.09	3.78	3.57	3.75	1.10	2.53	.31	.04	.79	20.18
Q	0	0	0	.02	.15	.84	.77	T	.01	0	0	T	1.79
1946 P	.47	T	1.48	.21	2.78	2.88	3.33	3.96	5.84	3.97	1.83	T	26.75
Q	0	0	.02	0	0	.01	.09	.30	1.83	.67	.62	0	3.54
1947 P	.21	.12	.40	3.72	2.66	5.45	1.57	1.08	.33	.41	1.24	1.13	18.32
Q	0	0	0	.32	.23	*1.99	*.13	0	0	0	0	0	-2.67
1948 P	.12	1.08	.47	.42	1.66	4.07	4.36	1.01	1.08	.73	1.21	.33	16.54
Q	0	0	*.25	0	0	.50	.28	.01	0	0	0	0	1.04
1949 P	.78	.52	1.66	1.88	5.58	6.87	3.99	.97	1.71	3.17	0	.20	27.33
Q	0	0	.05	0	1.81	*2.23	.79	0	0	.68	0	0	5.56
1950 P	.03	.42	.15	.62	3.90	2.02	4.92	2.27	5.30	1.33	.51	0	21.47
Q	0	0	0	0	.45	.29	1.17	0	1.93	.33	0	0	4.17
1951 P	.37	1.60	1.13	3.19	3.43	9.60	6.32	3.33	3.37	1.90	.50	.10	34.84
Q	0	0	T	.05	.14	*4.29	3.06	.03	.30	.02	0	0	7.89
1952 P	.24	.47	1.39	2.58	2.91	4.20	5.31	.96	.38	0	.63	.65	19.72
Q	0	0	0	.17	.39	.58	1.62	0	0	0	0	0	2.76
1953 P	.12	.67	1.01	2.13	3.12	3.15	1.50	1.70	1.47	.81	2.55	1.36	19.59
Q	0	0	0	T	.09	.47	0	0	0	0	0	0	.56
1954 P	.04	.36	.34	1.85	6.17	1.21	1.11	3.86	1.55	1.94	.01	.50	18.94
Q	0	0	0	0	*1.23	0	0	.06	0	.05	0	0	1.34
P													
Q													
P													
Q													
P													
Q													
P													
Q													
**Av. P	.27	.54	.86	2.29	3.53	4.69	3.23	2.59	2.34	1.25	.78	.47	22.84
**Av. Q	.01	T	.03	.13	.54	1.33	.61	.20	.54	.13	.05	T	3.57
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1941. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



4-56

HASTINGS, NEBRASKA

Watershed 21-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.

AREA: 3.94 ac.

SHAPE: Rectangular, 350 ft. wide, 520 ft. long.

SLOPES: 47% is in 2-5% class; 40% in 5-8%; 11% in 8-12%; 2% over 12%. Aspect N-NE.

SOILS: Loessial. Topsoil - 46% silt loam texture, medium to fine crumb structure, 54% silty clay loam texture, medium to fine granular structure; 15% is 8-12 in. thick, 31% is 5-8 in. thick, and 54% is 1-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 46%; Hastings silty clay loam - 54%.

EROSION: 1 - 15%; 2 - 31%; 3 - 54%.

LAND CAPABILITY: III - 67%; IV - 25%; VI - 8%.

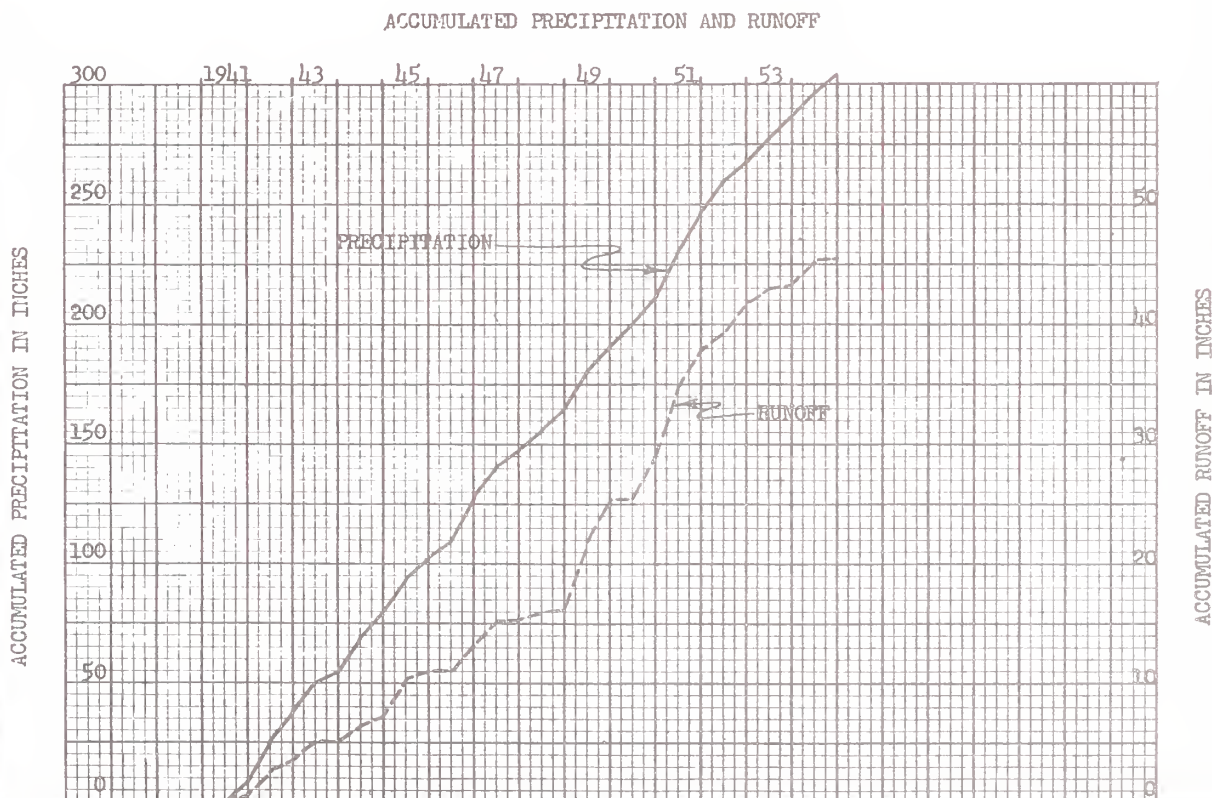
SURFACE DRAINAGE: Good; length of principal waterway - 580 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1941-54 - a corn, oats, wheat rotation; stubble mulch farmed.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



Cooperative Research Project of USDA and Nebraska Agricultural Experiment Station

44.25-1

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Hastings, Nebraska, Watershed 21-R

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P				3.51	1.80	7.76	1.55	2.69	2.42	2.59	0.92	0.52	23.76
Q				.15	.03	2.80	0	* .07	.06	.57	.14	0	3.82
1942 P	0.02	0.56	1.78	3.50	2.57	7.94	1.79	4.33	6.04	.33	.08	.92	29.86
Q	.02	0	.06	.03	.05	2.00	T	.56	.34	0	0	0	3.06
1943 P	0	.67	.04	2.35	1.74	6.12	2.26	1.41	.06	.58	.12	.12	15.47
Q	.01	0	0	.04	T	1.17	T	0	0	0	0	0	1.22
1944 P	.86	.08	.82	4.29	5.64	3.87	1.74	7.67	.71	.72	1.47	.06	27.93
Q	0	0	T	.58	* .98	.26	0	*1.02	.02	T	T	0	2.86
1945 P	.26	.41	.55	3.09	3.78	3.57	3.75	1.10	2.53	.31	.04	.79	20.18
Q	0	0	0	.53	.84	1.30	.51	T	0	0	0	0	3.18
1946 P	.47	T	1.48	.21	2.78	2.88	3.33	3.96	5.84	3.97	1.83	T	26.75
Q	.02	0	0	0	0	.01	.16	.24	1.30	.53	.36	0	2.62
1947 P	.21	.12	.40	3.72	2.66	5.45	1.57	1.08	.33	.41	1.24	1.13	18.32
Q	0	0	0	.38	0	1.61	* .02	0	0	0	0	0	2.01
1948 P	.12	1.08	.47	.42	1.66	4.07	4.36	1.01	1.08	.73	1.21	.33	16.54
Q	0	0	.30	0	0	.03	.74	0	0	0	0	0	1.07
1949 P	.78	.52	1.66	1.88	5.58	6.87	3.99	.97	1.71	3.17	0	.20	27.33
Q	0	0	0	0	3.02	3.03	1.23	0	0	*1.20	0	0	8.48
1950 P	.03	.42	.15	.62	3.90	2.02	4.92	2.27	5.30	1.33	.51	0	21.47
Q	0	0	0	0	.01	.23	1.20	* .04	*2.29	* .56	0	0	4.33
1951 P	.37	1.60	1.13	3.19	3.43	9.60	6.32	3.33	3.37	1.90	.50	.10	34.84
Q	0	.07	.04	.09	.45	4.78	3.11	.02	.02	T	0	0	8.58
1952 P	.24	.47	1.39	2.58	2.91	4.20	5.31	.96	.38	0	.63	.65	19.72
Q	0	0	0	.07	.44	.98	2.34	0	0	0	0	0	3.83
1953 P	.12	.67	1.01	2.13	3.12	3.15	1.50	1.70	1.47	.81	2.55	1.36	19.59
Q	0	0	0	0	.19	* .91	0	0	0	0	0	0	1.10
1954 P	.04	.36	.34	1.85	6.17	1.21	1.11	3.86	1.55	1.94	.01	.50	18.94
Q	0	0	0	.07	2.26	0	0	T	0	.02	0	0	2.35
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
**Av. P	.27	.54	.86	2.29	3.53	4.69	3.23	2.59	2.34	1.25	.78	.47	22.84
**Av. Q	T	.01	.03	.14	.63	1.25	.72	.14	.31	.18	.03	0	3.44
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1941. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Little Blue River Watershed; Kansas River Basin.

AREA: 3.99 ac.

SHAPE: A pentagon, 500 ft. across.

SLOPES: 8% is in 0-2% class; 69% in 2-5%; 23% in 5-8%. Aspect NE.

SOILS: Loessial. Topsoil - 69% silt loam texture, medium to fine crumb structure, 31% silty clay loam texture, medium to fine granular structure; 69% is 8-12 in. thick and 31% is 3-5 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 69%; Hastings silty clay loam - 31%.

EROSION: 1 - 69%; 3 - 31%.

LAND CAPABILITY: II - 4%; III - 86%; IV - 10%.

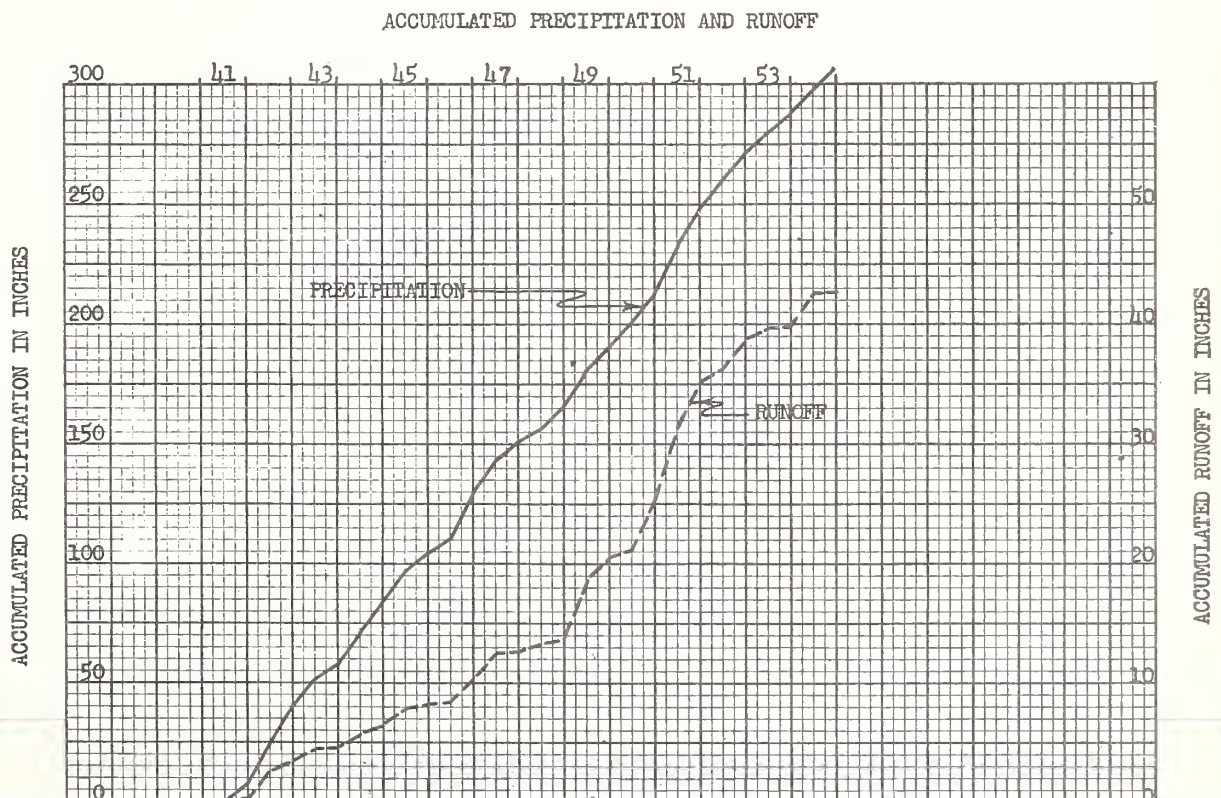
SURFACE DRAINAGE: Good; length of principal waterway - 500 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1941 - wheat, straight row farmed until July, balance of year - stubble mulch farmed; 1942-54 - an oats, wheat, corn rotation - stubble mulch farmed.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.



Cooperative Research Project of USDA and Nebraska Agricultural Experiment Station.



# MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska, Watershed 22-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P				3.80	2.18	8.72	1.22	2.79	2.30	2.12	0.77	0.61	24.51
Q				.10	.17	1.76	0	0	0	.01	0	0	2.04
1942 P	0.02	0.46	1.70	3.44	2.81	8.65	2.39	4.37	6.64	.36	.15	1.03	32.02
Q	.01	0	.01	.01	.06	2.23	.28	.48	.12	0	0	0	3.20
1943 P	0	.77	.14	2.48	1.57	5.82	2.34	1.22	.11	1.27	.10	.14	15.96
Q	0	0	0	.05	.02	1.14	.03	0	0	0	0	0	1.24
1944 P	.80	.10	.83	4.18	5.65	3.21	1.83	7.69	.89	.88	1.53	.05	27.64
Q	0	0	T	.20	.71	.08	0	1.03	.01	.01	T	0	2.04
1945 P	.30	.36	.58	2.84	3.48	3.27	3.24	1.50	2.67	.30	.03	.92	19.49
Q	0	0	0	.03	.46	.93	.21	T	0	0	0	0	1.63
1946 P	.44	T	1.65	.19	2.65	2.45	3.54	3.85	5.21	3.96	1.94	.01	25.89
Q	.01	0	0	0	0	.01	.20	.35	.86	.49	.26	0	2.18
1947 P	.23	.15	.55	3.68	2.93	5.81	1.72	1.07	.35	.55	1.22	1.14	19.40
Q	0	0	0	.32	.01	2.12	.03	0	0	0	0	0	2.48
1948 P	.09	1.09	.45	.44	1.75	3.81	4.43	.81	1.03	.72	1.14	.26	16.02
Q	0	0	* .30	0	0	T	.68	0	0	0	0	0	.98
1949 P	.83	.44	1.68	2.15	5.56	6.47	3.31	1.02	1.81	3.06	0	.19	26.52
Q	0	0	0	0	2.50	2.66	.64	0	.01	1.05	0	0	6.86
1950 P	T	.43	.24	.62	4.20	2.38	5.72	2.12	4.56	1.30	.51	0	22.08
Q	0	0	0	0	* .02	* .43	* 1.36	.05	2.15	.68	0	0	4.69
1951 P	0.35	1.61	1.03	2.99	3.62	10.29	5.63	3.24	3.41	1.69	.50	.10	34.46
Q	0	.33	.05	.07	.66	5.51	3.04	.02	.01	0	0	0	9.69
1952 P	.22	.56	1.43	2.38	2.78	4.74	6.01	1.62	.46	0	.76	.83	21.79
Q	0	0	0	.01	.28	1.02	2.51	0	0	0	0	0	3.82
1953 P	.16	.74	.96	1.96	2.81	3.17	1.21	1.79	1.39	.63	2.24	1.20	18.26
Q	0	0	0	0	.03	.95	0	0	0	0	0	0	.98
1954 P	.04	.27	.29	1.52	6.57	1.37	1.01	3.83	1.62	1.91	.01	.45	18.89
Q	0	0	0	T	2.73	0	0	.01	.02	.04	0	0	2.80
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
**Av. P	.27	.54	.89	2.22	3.57	4.73	3.26	2.63	2.32	1.28	.78	.49	22.98
**Av. Q	T	.03	.03	.05	.58	1.31	.69	.15	.24	.17	.02	0	3.27
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

Notes: \* Partially estimated. \*\* Does not include the part year amounts for 1941. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Febr., March, April and Dec. include snow and snow melt. Quality of records: P - excellent Q - excellent.

4-56

## HASTINGS, NEBRASKA Watershed 23-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Little Blue River Watershed; Kansas River Basin.

AREA: 4.06 ac.

SHAPE: Rectangular, 400 ft. wide, 480 ft. long.

SLOPES: 68% is in 2-5% class; 25% in 5-8%; 7% in 8-12%. Aspect NW.

SOILS: Loessial. Topsoil - 53% silt loam texture, medium to fine crumb structure, 47% silty clay loam texture, medium to fine granular structure; 53% is 5-8 in. thick, 26% is 3-5 in. thick and 21% is 1-3 in. thick. Subsoil - moderately slow permeability. Internal drainage - medium. Hastings silt loam - 53%; Hastings silty clay loam - 47%.

EROSION: 2 - 53%; 3 - 47%.

LAND CAPABILITY: III - 80%; IV - 17%; VI - 3%.

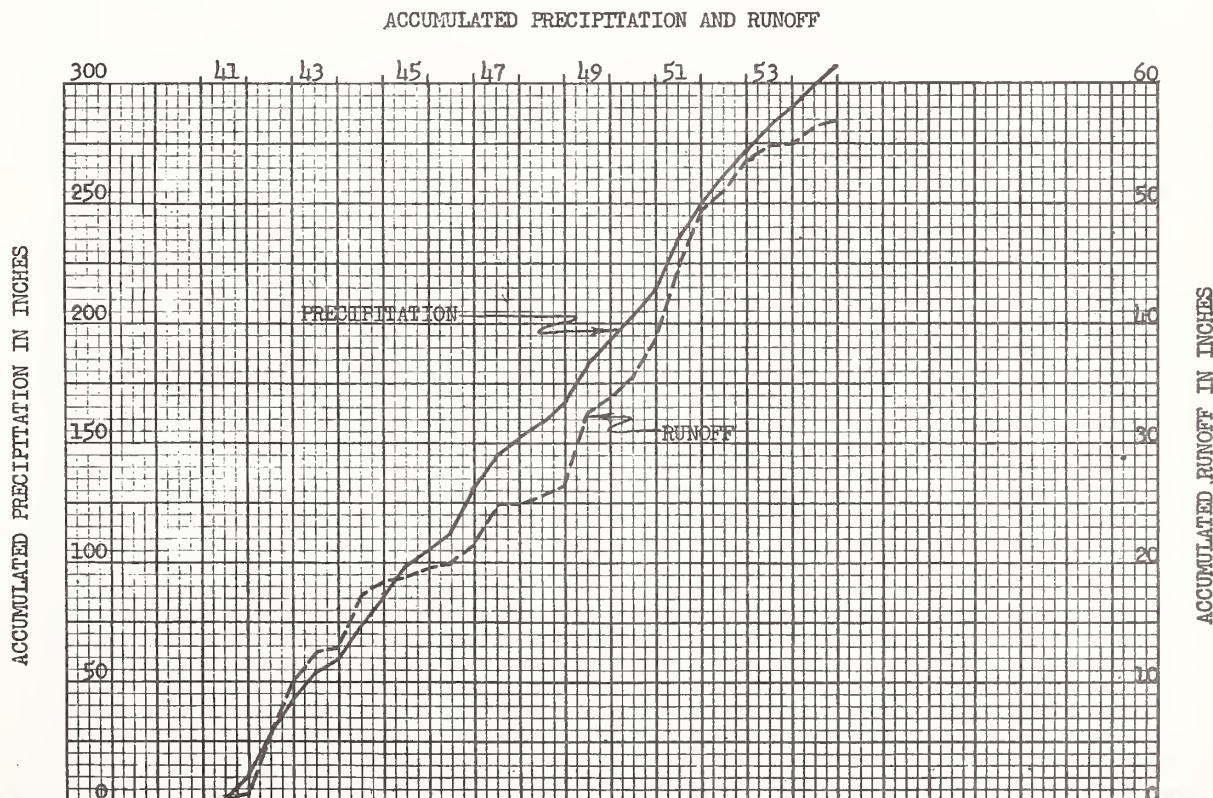
SURFACE DRAINAGE: Good; length of principal waterway - 620 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.

WATERSHED CONDITIONS: Cultivated; 1941 - part wheat and part barley straight row farmed until July, balance of year stubble mulch farmed; 1942-54 - a corn, oats, wheat rotation - stubble mulch farmed.

GENERALLY REPRESENTS: Cultivated land in Central Nebraska - Kansas Loess Plains.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Hastings, Nebraska, Watershed 23-H**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P				3.80	2.18	8.72	1.22	2.79	2.30	2.12	0.77	0.61	24.51
Q				.22	.24	2.22	0	0	0	.01	T	0	2.69
1942 P	0.02	0.46	1.70	3.44	2.81	8.65	2.39	4.37	6.64	.36	.15	1.03	32.02
Q	0	0	.01	.03	0	5.31	T	1.55	3.00	0	0	0	9.90
1943 P	0	.77	.14	2.48	1.57	5.82	2.34	1.22	.11	1.27	.10	.14	15.96
Q	0	0	0	.23	.08	2.23	.05	0	0	.01	0	0	2.60
1944 P	.80	.10	.83	4.18	5.65	3.21	1.83	7.69	.89	.88	1.53	.05	27.64
Q	0	0	T	1.50	2.50	.55	0	.92	T	.02	.05	0	5.54
1945 P	.30	.36	.58	2.84	3.48	3.27	3.24	1.50	2.67	.30	.03	.92	19.49
Q	0	0	0	.02	.03	.77	.52	T	.01	0	0	T	1.35
1946 P	.44	T	1.65	.19	2.65	2.45	3.54	3.85	5.21	3.96	1.94	.01	25.89
Q	0	0	0	0	.01	0	.06	.30	.87	.33	.32	0	1.89
1947 P	.23	.15	.55	3.68	2.93	5.81	1.72	1.07	.35	.55	1.22	1.14	19.40
Q	0	0	0	.37	.50	*2.28	.18	0	0	0	0	0	3.33
1948 P	.09	1.09	.45	.44	1.75	3.81	4.43	.81	1.03	.72	1.14	.26	16.02
Q	0	0	*.25	0	0	.40	.96	T	.01	0	0	0	1.62
1949 P	.83	.44	1.68	2.15	5.56	6.47	3.31	1.02	1.81	3.06	0	.19	26.52
Q	0	0	.05	T	2.99	2.95	.51	0	0	.78	0	0	7.28
1950 P	T	.43	.24	.62	4.20	2.38	5.72	2.12	4.56	1.30	.51	0	22.08
Q	0	0	0	0	.78	.71	*1.42	.04	*1.92	.47	0	0	5.34
1951 P	.35	1.61	1.03	2.99	3.62	10.29	5.63	3.24	3.41	1.69	.50	.10	34.46
Q	0	0	.01	.04	.06	5.53	3.41	.25	.98	.12	0	0	10.40
1952 P	.22	.56	1.43	2.38	2.78	4.74	6.01	1.62	.46	0	.76	.83	21.79
Q	0	0	0	.08	.41	1.15	2.35	0	0	0	0	0	3.99
1953 P	.16	.74	.96	1.96	2.81	3.17	1.21	1.79	1.39	.63	2.24	1.20	18.26
Q	0	0	0	T	.16	.98	0	T	0	0	0	0	1.14
1954 P	.04	.27	.29	1.52	6.57	1.37	1.01	3.83	1.62	1.91	.01	.45	18.89
Q	0	0	0	0	1.93	0	0	.10	.04	.11	0	0	2.18
P													
Q													
P													
Q													
P													
Q													
P													
Q													
**Av. P	.27	.54	.89	2.22	3.57	4.73	3.26	2.63	2.32	1.28	.78	.49	22.98
**Av. Q	0	0	.02	.17	.73	1.76	.73	.24	.53	.14	.03	T	4.35
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1941. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.

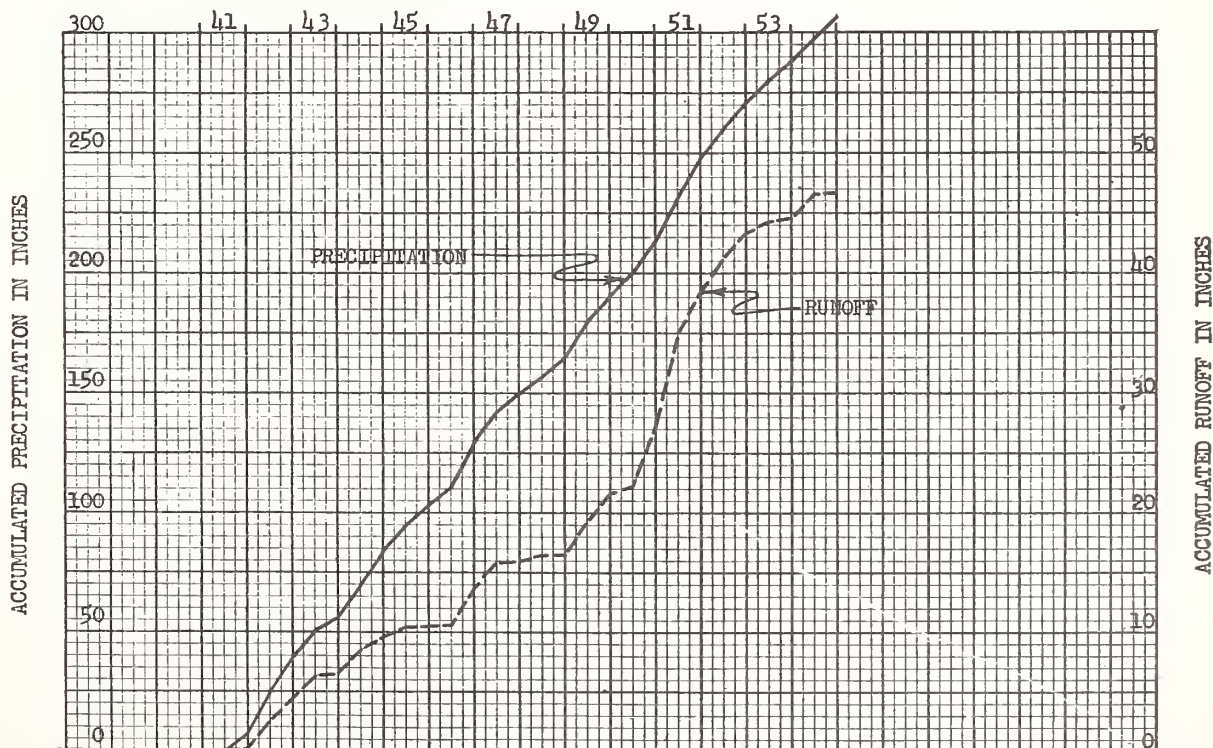


4-56

## HASTINGS, NEBRASKA Watershed 24-H

LOCATION: Webster Co., Nebr.; 2 mi. S. of Rosemont; Beaver Creek Watershed, Republican River Basin.AREA: 4.21 ac.SHAPE: Oval shaped, 500 ft. wide, 450 ft. alt.SLOPES: 58% is in 2-5% class; 24% in 5-8%; 14% in 8-12%; 4% over 12%. Aspect S-SW.SOILS: Loessial. Topsoil - 34% silt loam texture, medium to fine crumb structure, 66% silty clay loam texture, medium to fine granular structure; 25% is 8-12 in. thick, 26% is 3-5 in. thick and 49% is 0-3 in. thick. Permeability of subsoil - 91% is moderately slow and 9% is moderate. Internal drainage - medium. Hastings silt loam - 25%; Hastings silty clay loam - 66%; Colby silt loam - 9%. EROSION: 1 - 25%; 3 - 75%.LAND CAPABILITY: III - 68%; IV - 18%; VI - 14%.SURFACE DRAINAGE: Good; length of principal waterway - 475 ft.; a natural watershed with surface flow to a well defined waterway; earth dike boundary.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 3 ft. H-type flume, FW-1 recorder; precipitation - recording gage.WATERSHED CONDITIONS: Cultivated; 1941 - wheat farmed in straight rows until July, balance of year stubble mulch farmed; 1942-54 - a wheat, corn, oats rotation - stubble mulch farmed.GENERALLY REPRESENTS: Cultivated land in Central Nebraska-Kansas Loess Plains.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Hastings, Nebraska, Watershed 24-H

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P				3.80	2.18	8.72	1.22	2.79	2.30	2.12	0.77	0.61	21.51
Q				.16	.24	2.48	0	.01	0	.06	T	0	2.95
1942 P	0.02	0.46	1.70	3.44	2.81	8.65	2.39	4.37	6.64	.36	.15	1.03	32.02
Q	.08	0	.03	.05	.03	2.00	.11	.61	1.74	0	0	0	4.65
1943 P	0	.77	.14	2.48	1.57	5.82	2.34	1.22	.11	1.27	.10	.14	15.96
Q	0	.05	0	.19	T	1.25	.01	0	0	0	0	0	1.50
1944 P	.80	.10	.83	4.18	5.65	3.21	1.83	7.69	.89	.88	1.53	.05	27.64
Q	0	0	T	.25	1.89	.37	0	.93	0	0	0	0	3.44
1945 P	.30	.36	.58	2.84	3.48	3.27	3.24	1.50	2.67	.30	.03	.92	19.49
Q	0	0	0	.04	.11	.49	.28	.02	.02	0	0	T	.96
1946 P	.14	T	1.65	.19	2.65	2.45	3.54	3.85	5.21	3.96	1.94	.01	25.89
Q	0	0	0	0	T	.02	.19	.56	1.07	.66	.37	0	2.87
1947 P	.23	.15	.55	3.68	2.93	5.81	1.72	1.07	.35	.55	1.22	1.14	19.40
Q	0	0	0	.56	.20	*1.77	.02	0	0	0	0	0	-2.55
1948 P	.09	1.09	.45	.14	1.75	3.81	4.43	.81	1.03	.72	1.14	.26	16.02
Q	0	0	*.25	0	0	.01	.19	0	0	0	0	0	.45
1949 P	.83	.44	1.68	2.15	5.56	6.47	3.31	1.02	1.81	3.06	0	.19	26.52
Q	0	0	T	T	*1.61	1.68	.69	0	.08	1.40	0	0	5.46
1950 P	T	.43	.24	.62	4.20	2.38	5.72	2.12	4.56	1.30	.51	0	22.08
Q	0	0	0	0	*.10	.25	1.63	T	*2.62	.71	0	0	5.31
1951 P	.35	1.61	1.03	2.99	3.62	10.29	5.63	3.24	3.41	1.69	.50	.10	34.46
Q	0	0	.10	.35	1.31	6.44	2.93	.06	.50	T	0	0	11.69
1952 P	.22	.56	1.43	2.38	2.78	4.74	6.01	1.62	.46	0	.76	.83	21.79
Q	0	0	0	.18	.04	1.86	2.78	0	0	0	0	0	4.86
1953 P	.16	.74	.96	1.96	2.81	3.17	1.21	1.79	1.39	.63	2.24	1.20	18.26
Q	0	0	0	0	.04	.40	T	.02	.03	T	T	0	.49
1954 P	.04	.27	.29	1.52	6.57	1.37	1.01	3.83	1.62	1.91	.01	.45	18.89
Q	0	0	0	.13	2.36	0	0	.07	.01	T	0	0	2.57
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
**Av. P	.27	.54	.89	2.22	3.57	4.73	3.26	2.63	2.32	1.28	.78	.49	22.98
**Av. Q	.01	T	.03	.13	.59	1.27	.68	.17	.47	.21	.03	T	3.59
Normal P	.50	.83	1.11	2.54	3.42	4.01	3.12	2.88	2.54	1.44	.97	.68	24.04

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1941. Normal P based on average of records (1895-1955) at Hastings, Nebr. and Red Cloud, Nebr., 61 years each. Months of Jan., Feb., March, April and Dec. include snow and snow melt. Quality of records: P - excellent, Q - excellent.



2-56

SAFFORD, ARIZONA

Watershed W-I

LOCATION: Graham Co., Ariz.; 15 mi. NE of Safford; Bonito Creek, Gila River, Colorado River Basin.

AREA: 519 ac.

SHAPE: Boot; about 2200 ft. wide by 12,800 ft. long.

SLOPES: 46% is in 0-3% class; 8% is in 3-10%; 46% is in 10-35%. Aspect N-NW.

SOILS: Alluvial: topsoil - stony-gravelly loam and sandy loam, granular, thin (0-22"); subsoil - stony-gravelly silty clay loam, slowly permeable, underlain at about 23" by practically impervious caliche hardpan. Teague - 47%; Gilman - 4%; Laveen - 3%. Residual: topsoil - stony-gravelly loam, granular, thin (4"); subsoil - stony-gravelly clay or clay loam, blocky, slowly permeable. Laveena-46%.

EROSION: 1 - 25%; 2 - 75%.

LAND CAPABILITY: VII - 100%.

SURFACE DRAINAGE: Good; principal waterway - 14,360 ft.; drainage density - 43 ft. per ac.

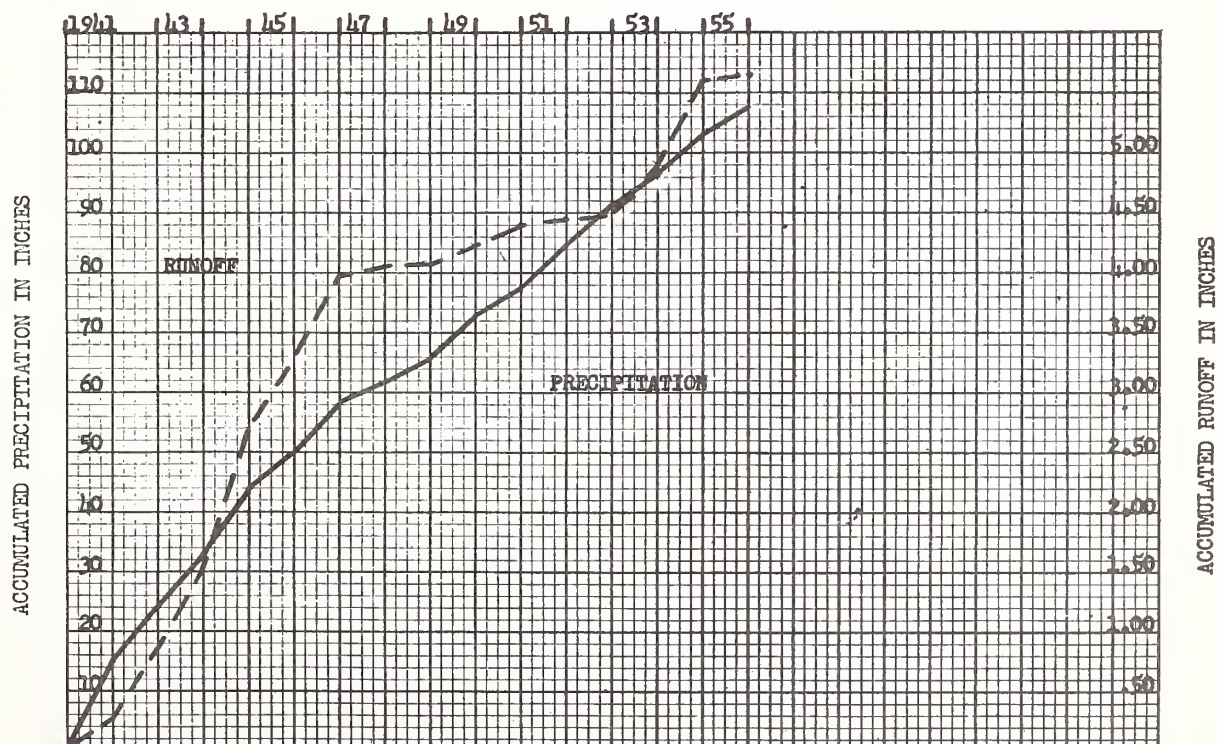
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broadcrested, triangular concrete weir with 3:1 and 2:1 side slopes, 6-hr. chart; precipitation - three recording gages, two 12-hr. charts and one 192-hr. chart.

WATERSHED CONDITIONS: 80% to 90% of area is bare. Vegetation consists mostly of shrubs (creosote-bush, snakeweed, mormon-tea, opuntia, catclaw, paloverde, mesquite, lycium, and ocotillo) and short grasses (three-awn, tobosa, and curly-mesquite).

GENERALLY REPRESENTS: Sonoran Highlands.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Arizona Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Safford, Ariz., Watershed W-I

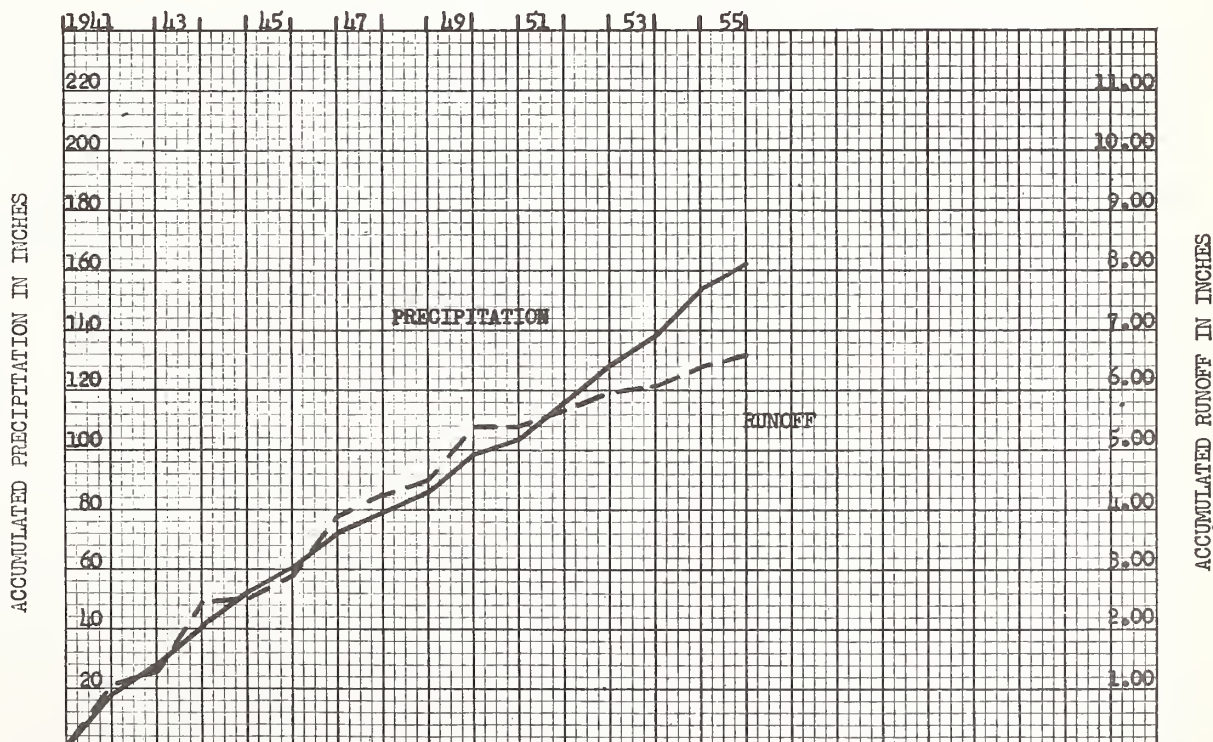
Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	0.51 NR	0.46 NR	0.20 NR	0.39 NR	0.17 NR	0 0	0.37 0	1.59 .15	0.15 0	2.47 .59	1.04 .03	NR NR	
1940 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	1.95 .26	.36 0	2.17 .17	2.00 .24	.09 0	2.28 * .01	1.87 * .02	
1941 P Q	1.29 .01	.88 0	1.02 .01	1.62 .09	.58 0	0 0	1.60 .02	3.06 .05	2.66 .13	.12 0	.37 0	2.13 0	15.33 .31
1942 P Q	.33 0	.71 0	.12 0	.50 0	0 0	0 0	1.21 T	2.28 .14	3.06 .48	.38 0	0 0	.41 0	9.00 .62
1943 P Q	.29 0	.12 0	1.13 0	.02 0	.18 0	1.52 .07	.66 0	2.31 .52	1.57 .07	.17 0	0 0	.92 0	8.89 .66
1944 P Q	.29 0	.35 0	.40 0	.05 0	.09 0	0 0	1.21 .01	1.99 .21	3.94 .94	.97 0	.92 .01	.71 0	10.92 1.17
1945 P Q	.40 0	.01 0	.71 0	0 0	0 0	0 0	.52 0	3.54 .57	.01 0	.45 0	0 0	.22 0	5.86 .57
1946 P Q	1.58 0	0 0	.03 0	0 0	0 0	.18 0	1.84 * .51	2.71 .18	.60 0	.50 0	.59 0	.38 0	8.41 .69
1947 P Q	.23 0	.04 0	.04 0	0 0	.12 0	.01 0	.75 0	1.50 .08	.09 0	.36 0	.09 0	.08 0	3.31 .08
1948 P Q	.12 0	1.06 0	.16 0	.01 0	0 0	.40 T	.34 0	.56 .02	.32 0	.42 0	.03 0	.71 0	4.13 .02
1949 P Q	1.45 0	.08 0	.31 0	.50 0	0 0	.57 0	1.61 .03	.57 .02	1.11 .08	.59 .02	.12 0	.62 0	7.53 .15
1950 P Q	.20 0	.37 0	0 0	.01 0	0 0	.20 0	2.33 .11	.56 T	.64 .07	0 0	0 0	0 0	4.31 .18
1951 P Q	.39 0	.35 0	.90 0	.77 0	0 0	0 0	.76 T	1.43 .03	.21 0	1.40 T	.24 0	.49 0	6.94 .03
1952 P Q	.50 0	.16 0	.62 0	.62 0	.02 0	.91 0	1.41 .05	1.02 .01	.10 0	0 0	.91 0	.18 0	6.45 .06
1953 P Q	.08 0	.88 0	.48 0	.18 0	.18 0	.41 .01	2.63 .39	.35 T	0 0	.15 0	.07 0	.08 0	5.49 .40
1954 P Q	.27 0	.08 0	.83 0	0 0	.08 0	.05 0	1.04 0	3.08 .55	1.27 .16	.10 T	0 0	0 0	6.80 .71
1955 P Q	1.06 0	.11 0	0 0	0 0	.03 0	0 0	1.84 .03	.93 .02	.01 0	.21 0	0 0	.16 0	4.35 .05
P Q													
P Q													
P Q													
P Q													
**Av. P **Av. Q	.57 T	.35 0	.45 T	.29 .01	.09 0	.28 .01	1.32 .08	1.73 .16	1.04 .13	.39 T	.22 T	.47 0	7.20 .39
Normal P	.70	.76	.55	.33	.14	.31	1.49	1.63	1.24	.52	.57	.77	9.01

Notes: \* Estimated. \*\*Does not include part-year amounts for years 1939 and 1940. Normal P based on 22-yr. record (1931-1952) at Safford, Arizona. Quality of records: P - excellent; Q - excellent. NR denotes no record.

2-56

SAFFORD, ARIZONAWatershed W-IILOCATION: Graham Co., Ariz.; 28 mi. NW of Safford; Gila River, Colorado River Basin.AREA: 682 ac. (1.07 sq. mi.)SHAPE: Club; about .5 mi. wide by 3 mi. long.SLOPES: 14% is in 0-3% class; 55% in 3-10%; 31% in 10-35%. Aspect E-NESOILS: Alluvial: topsoil - stony-gravelly sandy loam, readily permeable, thin (0-22"), loose and granular in upper part, massive and friable in lower part; subsoil - stony-gravelly clay and sandy loam, moderately permeable, massive to weak blocky structure. Frye - 25%; Artesia - 28%; Hanford - 6%; Rillito - 41%.EROSION: 1 - 34%; 2 - 66%.LAND CAPABILITY: VI - 69%; VII - 31%.SURFACE DRAINAGE: Good; principal waterway - 18,300 ft.; drainage density - 70 ft. per ac.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 16" broadcrested, triangular concrete weir with 5:1 side slopes, 6-hr. chart; precipitation - three recording gages, two 12-hr. charts and one 192-hr. chart.WATERSHED CONDITIONS: 282 acres are 65 to 75% bare and remaining 400 acres are 85 to 90% bare. Comparatively light vegetative cover is about equally divided between grasses (hairy, sidecoats and black grama, bull muhly, curly-mesquite, silver beardgrass, lovegrass, needlegrass, tobosa, triodia, and hoe grass), shrubs (baccharis, mesquite, beargrass, snakeweed, false mesquite, catclaw, acacia, opuntia, and creosotebush), and forbs (crassina and psilostrophe).GENERALLY REPRESENTS: Sonoran Highlands.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Arizona Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Safford, Ariz., Watershed W-II

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	0.62 0	1.03 0	0.49 0	0.56 0	0 0	0.01 0	1.06 0	5.07 * .61	0.44 NR	1.62 T	NR 0	NR NR	
1940 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	2.15 .02	1.50 .34	2.40 .01	1.82 .08	.29 0	2.20 .10	3.75 .23	
1941 P Q	1.37 .01	1.49 0	1.85 0	1.13 T	.49 0	.02 0	2.28 .05	2.44 .06	4.58 .91	.37 T	.85 0	1.81 0	18.68 1.03
1942 P Q	.28 0	.97 0	.27 0	.77 0	0 0	.19 0	1.84 .01	1.55 .20	1.74 .03	.69 0	0 0	.99 0	9.29 .24
1943 P Q	.86 0	.57 0	2.07 0	0 0	.03 0	.66 0	1.28 .03	4.94 1.16	1.05 T	.74 .01	0 0	.73 0	12.93 1.20
1944 P Q	.47 0	.95 0	.72 0	.48 0	.36 0	0 0	2.57 .04	.62 0	2.19 .02	.84 .03	1.35 0	.89 0	11.44 .09
1945 P Q	.91 0	.11 0	1.24 0	0 0	0 0	0 0	1.28 0	3.23 .34	.22 T	.62 0	0 0	.39 0	8.00 .34
1946 P Q	1.57 0	.03 0	.14 0	.34 0	0 0	.06 0	3.17 .17	4.14 .80	1.78 .03	.31 0	.56 0	.71 0	12.81 1.00
1947 P Q	.21 0	.01 0	0 0	.02 0	.10 0	.20 0	.24 0	3.15 .20	.36 .01	1.46 .12	.11 0	.24 0	6.10 .33
1948 P Q	.27 0	1.24 0	.42 0	0 0	0 0	0 0	.90 * .34	.53 0	.43 T	.85 0	.05 0	1.75 0	6.44 .34
1949 P Q	1.66 0	.08 0	.55 0	.82 0	0 0	.58 0	4.57 .45	1.40 .22	1.54 .17	.74 0	.35 0	.84 0	13.13 .84
1950 P Q	.60 0	.24 0	.30 0	0 0	0 0	.71 0	1.73 0	.62 0	.58 0	0 0	0 0	.09 0	4.87 0
1951 P Q	.48 0	.54 0	1.31 0	1.82 0	.05 0	0 0	.70 0	3.72 .21	.76 .06	1.76 T	.46 0	1.48 0	13.08 .27
1952 P Q	1.14 0	.26 0	1.31 0	.80 0	.08 0	1.12 0	1.95 .05	2.50 .24	.41 0	0 0	1.83 0	.36 0	11.76 .29
1953 P Q	.33 0	.74 0	.77 0	.32 0	.78 0	.03 0	5.23 .09	.51 0	0 0	.04 0	.36 0	.17 0	9.28 .09
1954 P Q	.81 0	.52 0	3.00 0	0 0	.39 0	.77 0	3.93 .14	4.15 .06	2.19 .12	.06 0	0 0	.09 0	15.91 .32
1955 P Q	1.39 0	.14 0	0 0	.02 0	.14 0	.55 0	3.64 .10	1.58 .09	0 0	.62 0	0 0	.22 0	8.30 .19
P Q													
P Q													
P Q													
**Av. P **Av. Q	.82 T	.53 0	.93 0	.43 T	.16 0	.33 0	2.35 .10	2.34 .24	1.19 .09	.61 .01	.39 0	.72 0	10.80 .44
Normal P	.70	.76	.55	.33	.14	.31	1.49	1.63	1.24	.52	.57	.77	9.01

Notes: \* Estimated. \*\*Does not include part-year amounts for years 1939 and 1940. Normal P based on 22-yr. record (1931-1952) at Safford, Arizona. Quality of records: P - excellent; Q - excellent. NR denotes no record.



2-56

SAFFORD, ARIZONAWatershed W-IV

LOCATION: Graham Co., Arizona, 14 mi. SE of Safford; San Simon Creek, Gila River, Colorado River Basin.

AREA: 764 ac. (1.19 sq. mi.)

SHAPE: Sickie; about .5 mi. wide by 3.6 mi. long.

SLOPES: 95% is in 0-3% class; 5% in 3-10%; Aspect E-NE.

SOILS: Alluvial: topsoil - thin (3 to 6 inches), sandy loam, loose granular; subsoil - light sandy clay loam, blocky, somewhat compact, weakly cemented in places, moderately to slowly permeable. Mohave - 90%; Karro - 3%; Hanford - 7%.

EROSION: 1 - 25%; 2 - 70%; 3 - 5%.

LAND CAPABILITY: VII - 100%.

SURFACE DRAINAGE: Good; principal waterway - 20,350 ft.; drainage density - 106 ft. per ac.

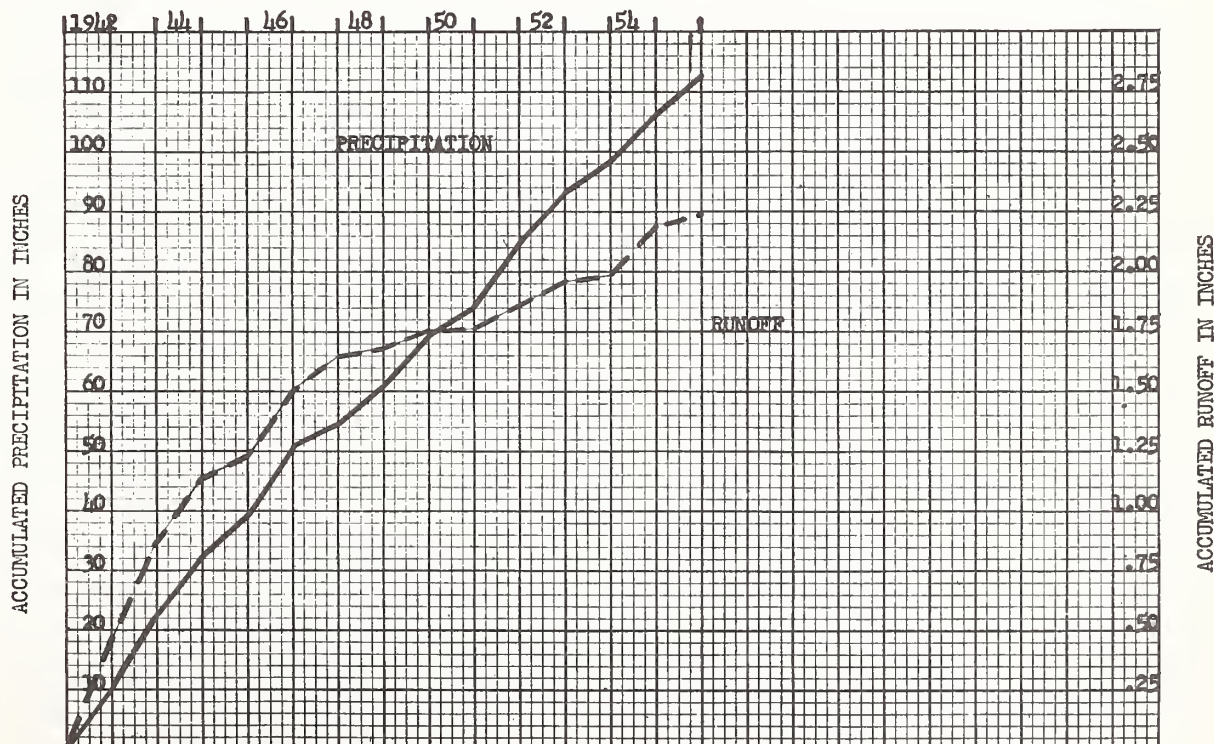
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16" broadcrested, triangular concrete weir with 5:1 side slopes, 6-hr. chart; precipitation - three recording gages, two 12-hr. charts and one 192-hr. chart.

WATERSHED CONDITIONS: 75 to 85% of area is bare. Sparse vegetation is composed entirely of shrubs (creosotebush, snakeweed, fouqueria, cactus, soapweed, mormon-tea, rayless goldenrod, thornbush, catclaw, mesquite, koberlinia, and saltbush) except for a trace of short grasses (cottongrass, barley grass, and hoe grass).

GENERALLY REPRESENTS: Sonoran Highlands.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Arizona Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Safford, Arizona, Watershed W-IV**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	0.58 NR	0.59 NR	0.26 NR	0.24 NR	0 NR	0 NR	0.76 T	2.45 .03	0.94 .04	0.58 0	1.46 0	NR 0	
1940 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	1.08 .02	.40 0	2.42 .01	2.77 .23	NR 0	NR 0	NR 0	
1941 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	NR NR	1.19 0	3.14 .19	2.75 .10	.20 0	.36 0	1.95 0	
1942 P Q	.37 0	.86 0	.10 0	.45 0	0 0	0 0	1.92 .02	2.68 .05	3.70 .40	.21 0	0 0	.56 0	10.85 .47
1943 P Q	1.28 0	.08 0	1.18 0	0 0	.16 0	1.00 0	1.37 T	3.92 .32	1.96 .09	.27 0	0 0	.73 0	11.95 .41
1944 P Q	.47 0	.40 0	.47 0	.08 0	.22 0	.08 0	1.32 0	1.75 .06	2.75 .20	.90 0	1.14 T	.75 0	10.33 .26
1945 P Q	.74 0	.11 0	.81 0	0 0	0 0	0 0	1.47 .04	2.13 .05	.08 0	.49 0	0 0	.13 0	5.96 .09
1946 P Q	1.92 0	0 0	0 0	.04 0	0 0	.33 0	2.64 .02	3.29 .22	1.03 .04	.97 T	.55 0	.24 0	11.01 .28
1947 P Q	.18 0	.02 0	0 0	0 0	.26 0	1.34 .13	.42 0	1.20 .01	.23 0	.35 0	.25 0	.20 0	4.45 .14
1948 P Q	0 0	1.30 0	.07 0	0 0	0 0	.38 .01	.50 0	1.36 .02	.20 0	.67 0	0 0	1.91 0	6.39 .03
1949 P Q	1.81 0	.39 0	.23 0	.22 0	0 0	.90 0	2.39 .04	1.11 .03	.42 0	.58 0	.10 0	.71 0	8.86 .07
1950 P Q	.15 0	.40 0	.08 0	0 0	0 0	1.13 .01	1.86 0	.54 T	.48 T	.09 0	0 0	0 0	4.73 .01
1951 P Q	.58 0	.45 0	1.05 0	.76 0	0 0	0 0	1.66 .02	2.21 .08	.15 0	2.03 .01	.29 0	1.61 0	10.79 .11
1952 P Q	.69 0	.18 0	.95 0	.56 0	0 0	1.18 0	.73 0	2.58 .09	.42 0	0 0	.96 0	.23 0	8.48 .09
1953 P Q	.13 0	.93 0	.51 0	.27 0	.11 0	.24 0	2.17 .02	.02 0	0 0	.02 0	.24 0	.08 0	4.72 .02
1954 P Q	.46 0	.14 0	1.67 0	.17 0	.25 0	.33 0	1.28 .03	3.16 .10	.86 .08	.02 0	0 0	0 0	8.34 .21
1955 P Q	.74 0	.07 0	.02 0	0 0	.03 0	.06 0	3.83 .05	.96 0	.16 0	.17 0	0 0	.12 0	6.16 .05
P Q													
P Q													
P Q													
**Av. P **Av. Q	.68 0	.38 0	.51 0	.18 0	.08 0	.50 .01	1.68 .02	1.92 .07	.89 .06	.48 T	.25 T	.52 0	8.07 .16
Normal P	.70	.76	.55	.33	.14	.31	1.49	1.63	1.24	.52	.57	.77	9.01

**Notes:** \*\* Does not include part-year amounts for years 1939, 1940, and 1941. Normal P based on 22-yr. record (1931-1952) at Safford, Arizona. Quality of records: P - excellent; Q - excellent. NR denotes no record.



2-56

SAFFORD, ARIZONA

Watershed W-V

LOCATION: Graham Co., Ariz.; 15 mi. SE of Safford; San Simon Creek, Gila River, Colorado River Basin.

AREA: 723 ac. (1.13 sq. mi.) SHAPE: Serpentine, .4 mi. wide by 3.10 mi. long.

SLOPES: 4% is in 0-3% class; 31% in 3-10%; 65% in 10-35%. Aspect E-SE.

SOILS: Alluvial: topsoil - thin (4-5 inches), stony sandy clay loam, granular, moderate organic matter content; subsoil - gravelly sandy clay loam, slowly to moderately permeable. Signal (Cliff) - 60%; Gilman - 19%. Residual: topsoil - thin (2-4 inches) stony-gravelly sandy clay loam, granular; subsoil - stony-gravelly clay or clay loam, blocky, slow internal drainage. Luzena - 21%.

EROSION: 1 - 100%.

LAND CAPABILITY: VI - 35%; VII - 65%.

SURFACE DRAINAGE: Good; principal waterway - 18,850 ft.; drainage density - 55 ft. per ac. Stock tank with drainage area of less than 10% of watershed size, located near lower end of watershed.

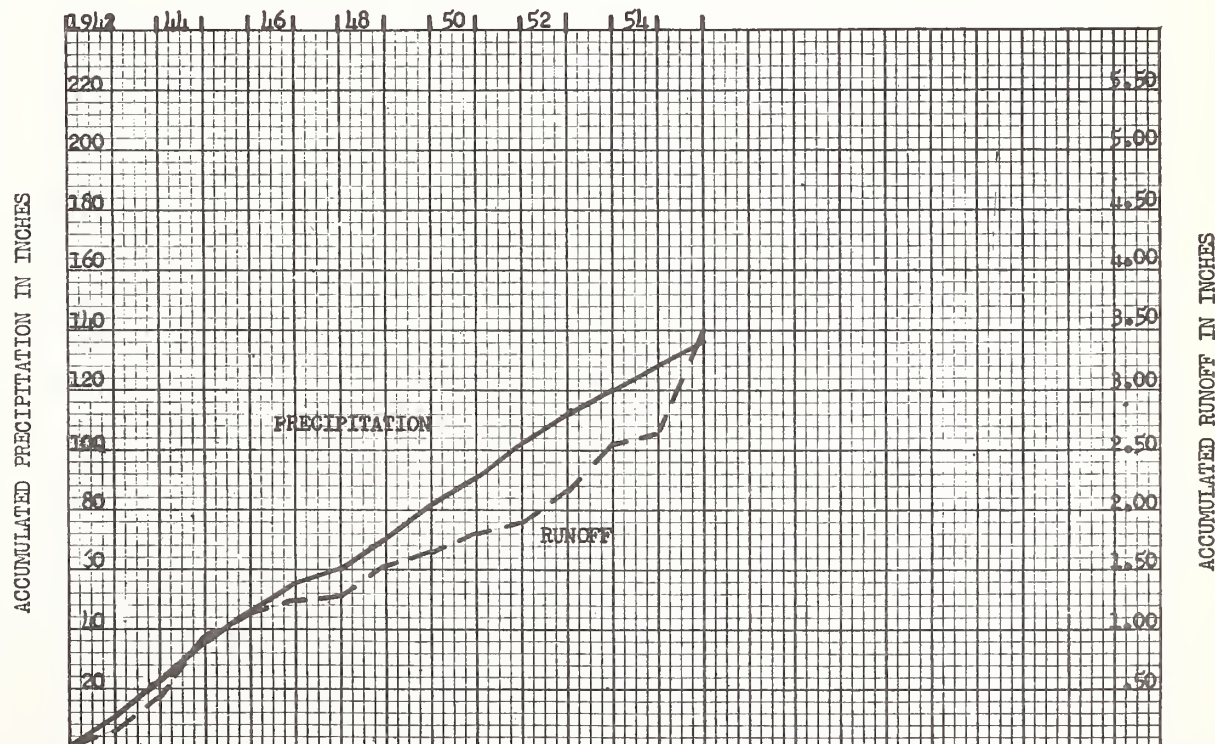
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" broadcrested, triangular concrete weir with 5:1 side slopes, 6-hr. chart; precipitation - four recording gages, three 12-hr. charts and one 192-hr. chart.

WATERSHED CONDITIONS: About 80% of area is bare. Vegetation consists mostly of short grasses (tobosa, curly-mesquite, blue, black, and side-oats grama, three-awn, and triodia), shrubs (mesquite, snakeweed, acacia, soapweed, lycium, opuntia, and baccharis), and forbs (crassina, indianwheat, and filaree).

GENERALLY REPRESENTS: Sonoran Highlands.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Arizona Agricultural Experiment Station.



## MONTHLY PRECIPITATION AND RUNOFF (Inches) Safford, Arizona, Watershed W-V

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	0.88 0	0.50 0	0.11 0	0.34 0	NR 0	NR 0	1.25 T	3.15 .17	0.70 .02	0.51 0	1.62 0	0.08 NR	
1940 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	.72 0	1.81 T	2.67 .03	1.69 .02	NR NR	NR NR	NR NR	
1941 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	NR NR	1.90 0	2.84 .02	3.04 .09	.20 0	.52 0	2.66 .01	
1942 P Q	.62 0	1.36 0	.17 0	.83 0	0 0	0 0	2.68 .04	1.60 .07	.91 .01	1.11 .04	0 0	.87 0	10.15 .16
1943 P Q	1.17 0	.09 0	2.17 T	0 0	.17 0	.84 0	1.48 T	3.26 .24	1.77 .05	.33 0	.11 0	.88 0	12.30 .29
1944 P Q	.68 0	.81 0	.63 0	.19 0	.27 0	.16 0	2.00 .05	2.63 .31	2.76 .12	.84 0	1.50 .01	1.33 T	13.80 .49
1945 P Q	1.01 0	.22 0	.74 0	0 0	0 0	0 0	2.51 .02	2.52 .03	1.40 .13	1.04 .03	0 0	.22 0	9.66 .21
1946 P Q	1.71 0	0 0	.02 0	0 0	0 0	.01 0	1.61 .01	3.50 .08	.62 0	.92 T	.62 0	.43 0	9.44 .09
1947 P Q	.37 0	.16 0	0 0	0 0	.12 0	.19 0	1.09 .01	1.54 .03	.16 0	.29 0	.45 0	.40 0	4.77 .04
1948 P Q	0 0	1.72 0	.60 0	0 0	0 0	.38 .01	1.17 .09	1.75 .06	.99 .03	.60 T	.06 0	2.93 .06	10.20 .25
1949 P Q	2.43 T	.72 0	.27 0	.15 0	0 0	.45 0	1.43 .01	2.13 .05	2.13 .05	.92 T	.07 0	1.02 T	11.72 .11
1950 P Q	.47 0	.70 0	.07 0	.62 0	0 0	.71 .01	4.64 .15	.55 T	.64 .01	0 0	0 0	0 0	8.40 .17
1951 P Q	.57 0	.58 0	1.30 0	1.43 0	0 0	0 0	1.20 0	1.85 .01	.20 0	2.82 .08	.51 0	1.54 0	12.00 .09
1952 P Q	.84 0	.29 0	.93 0	.58 0	0 0	1.70 0	1.07 T	2.42 .27	.35 0	0 0	1.84 T	.29 0	10.31 .27
1953 P Q	.06 0	.88 0	.89 0	.18 0	.02 0	1.66 .01	3.77 .37	.29 0	0 0	.19 0	.12 0	.03 0	8.09 .38
1954 P Q	.85 0	.35 0	1.69 0	0 0	.33 0	.46 T	1.31 .01	1.48 .01	1.19 .05	.11 0	0 0	.02 0	7.79 .07
1955 P Q  P Q  P Q	1.15 0  0  0	.22 0  0  0	.06 0  0  0	0 0  0  0	.15 0  0  0	.23 0  0  0	3.58 .71  0  0	1.54 .14  0  0	.18 0  0  0	.28 0  0  0	.01 0  0  0	.20 0  0  0	7.60 .85    
**Av. P **Av. Q	.85 T	.58 0	.68 T	.28 0	.08 0	.49 T	2.11 .11	1.93 .09	.95 .03	.67 .01	.38 T	.73 T	9.73 .24
Normal P	.70	.76	.55	.33	.14	.31	1.49	1.63	1.24	.52	.57	.77	9.01

Notes: \*\* Does not include part-year amounts for years 1939, 1940, and 1941. Normal P based on 22-yr. record (1931-1952) at Safford, Arizona. Quality of records: P - excellent; Q - excellent. NR denotes no record.

2-56

COLORADO SPRINGS, COLORADO Watershed W-1

LOCATION: El Paso Co., Colo.; 14 mi. NE of Colorado Springs; Jimmy Camp Creek, Fountain Creek, Arkansas River Basin.

AREA: 10.6 ac.

SHAPE: Oblong, about 450 ft. wide by 1300 ft. long.

SLOPES: 39% is in 1-3% class; 56% in 3-5%; 5% in 5-9%. Aspect N-NW.

SOILS: Parent material - Friable light brown calcareous clay loam with little or no organic matter. 4% of area - mapping unit 221 (uncorrelated series), non-calcareous, dark gray-brown clay loam that is friable when moist with weak prismatic structure. 96% of area - mapping unit 215 (uncorrelated series), slightly calcareous, pale brown to gray-brown loam that is very friable when moist with very weak fine crumb to angular blocky structure.

EROSION: 2 - 100%.

LAND CAPABILITY: VI - 100%.

SURFACE DRAINAGE: Waterways are quite shallow and the actual course taken by runoff water is therefore determined by the depth and direction of lister furrows; principal waterway - 1300 ft.; drainage density - 101 ft. per ac.

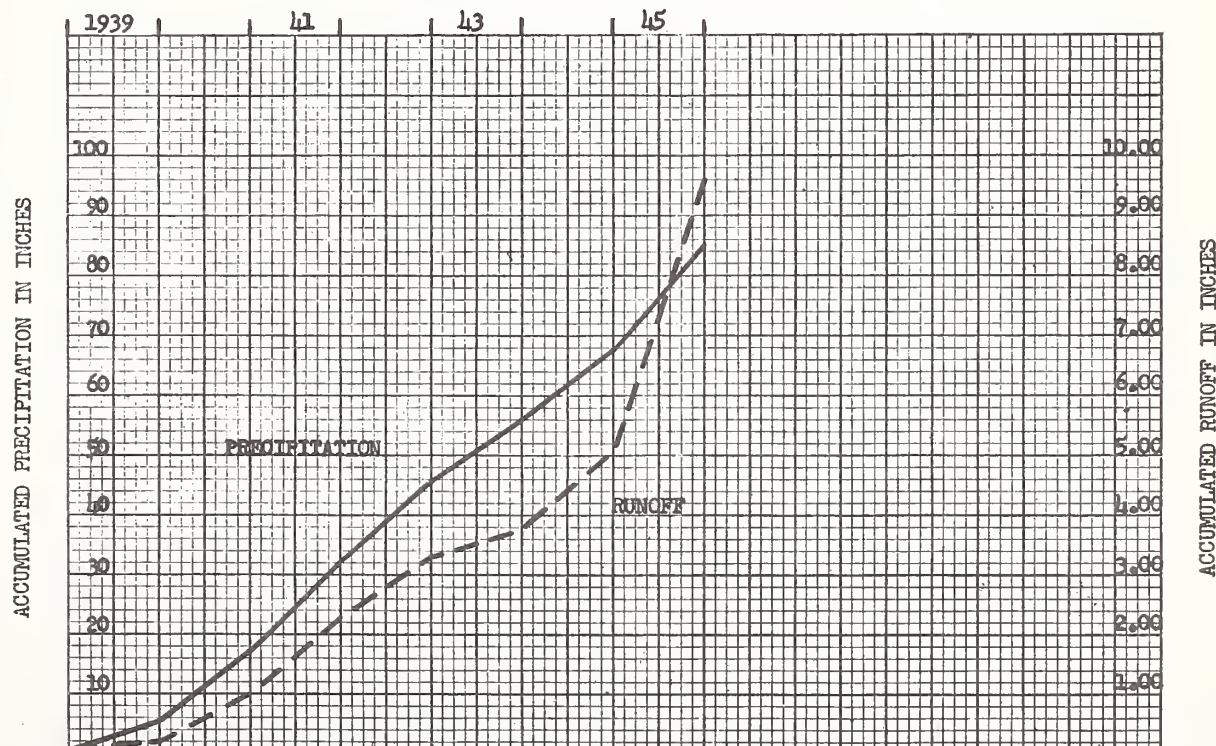
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" triangular, broadcrested concrete weir with 2:1 side slopes, 6-hr. chart; precipitation - standard U. S. Weather Bureau gage and a recording gage, 6-hr. chart.

WATERSHED CONDITIONS: Prior to 1938 - cultivation not definitely known but is said to have been in continuous cultivation for more than 50 years with corn and beans as principal crops. 1938-46 - corn, sorghum cane, and millet planted in strips; strips changed in direction from year to year. Quality of yields unknown.

GENERALLY REPRESENTS The Northern Brown Plains in Colorado and the Plains of Upper Arkansas and Furgatoire Rivers.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research project of USDA and Colorado Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Colorado Springs, Colo., Watershed W-1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P	NR	NR	NR	1.94	1.10	1.20	1.53	2.96	3.30	0.45	0.12	0.08	2.13
Q	NR	NR	NR	0	0	.08	.20	.85	1.00	0	0	0	
1939 P	.15	.08	1.10	.55	.53	.18	.42	1.79	.10	.09	.34	.10	5.43
Q	0	0	T	0	0	0	0	.17	0	0	0	0	
1940 P	.22	.15	.57	.38	2.46	.62	3.16	.98	2.83	.05	.15	.07	11.64
Q	0	0	0	0	T	.02	.20	.08	.52	0	0	0	
1941 P	.11	.06	1.63	1.51	1.11	1.77	1.11	3.94	1.69	1.91	.33	.05	15.22
Q	0	0	0	0	0	.05	0	1.23	0	.01	0	0	
1942 P	.12	.30	.30	3.32	.47	3.36	2.11	1.28	1.13	1.02	0	.15	13.56
Q	0	0	0	T	0	.19	.79	.08	0	0	0	0	
1943 P	.29	.17	.27	.94	2.29	1.09	2.68	1.40	.02	.41	.46	.12	10.14
Q	0	0	0	0	0	0	.41	0	0	0	0	0	
1944 P	.07	.11	1.08	1.62	1.85	.55	3.93	1.59	.26	.37	.40	.07	11.90
Q	0	0	0	T	0	0	.83	.48	0	0	0	0	
1945 P	.34	.22	.31	1.24	.71	1.49	6.61	5.35	.73	.16	.05	.10	17.31
Q	0	0	0	0	0	0	2.49	2.01	.01	0	0	0	
1946 P	NR	NR	NR	1.32	.75	.95	2.53	3.27	.38	.82	0	NR	NR
Q	NR	NR	NR	0	0	.01	.81	1.09	.03	0	0	NR	
P													
Q													
P													
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P													
Q													
**Av. P	.19	.16	.75	1.37	1.35	1.29	2.86	2.33	.97	.57	.25	.09	12.18
**Av. Q	0	0	T	T	T	.04	.67	.58	.08	T	0	0	1.37
Normal P	.21	.38	.72	1.60	2.22	1.79	2.81	2.30	1.13	.58	.33	.30	14.37

Notes: \*\*Does not include the part year amounts for 1938 and 1946. This station closed during months of Jan., Feb., March, and Dec.; amounts shown for these months are based upon auxiliary gage on Watershed W-2. Months of Sept.-April include snow and snow melt. Normal P based on 74 yr. record (1872-1945) at Colorado College, Colo. Quality of records: P - good; Q - good. NR denotes no record.



2-56 Revised 2-59

COLORADO SPRINGS, COLORADO Watershed W-2

LOCATION: El Paso Co., Colo.; 15 mi. NE of Colorado Springs; Black Squirrel Creek, Chico Creek, Arkansas River Basin.

AREA: 39.7 ac.

SHAPE: Club, outlet at large end; about 950 ft. wide by 2450 ft. long.

SLOPES: 16% is in 1-3% class; 26% in 3-5%; 48% in 5-9%; 10% in 9+%. Aspect S-SW.

SOILS: Parent material - tan sand and light brown sandy loam with very little organic matter. 11% of area - mapping unit 16 (uncorrelated series), non-calcareous, massive dark gray-brown sandy loam that is friable when moist. 36% of area - mapping unit 215 (uncorrelated series), non-calcareous, massive pale brown to yellowish-brown sandy loam that is very friable when moist. 53% of area -

EROSION: 2 - 70%; 1 - 30%.

mapping unit 12 (uncorrelated series), non-calcareous brown to gray-brown loamy sand that is friable when moist.

LAND CAPABILITY: VI - 100%.

SURFACE DRAINAGE: Principally overland flow due to absence of tributaries; principal waterway - 1300 ft.; drainage density - 57 ft. per ac.

CHARACTER OF FLOW: Ephemeral, continuous.

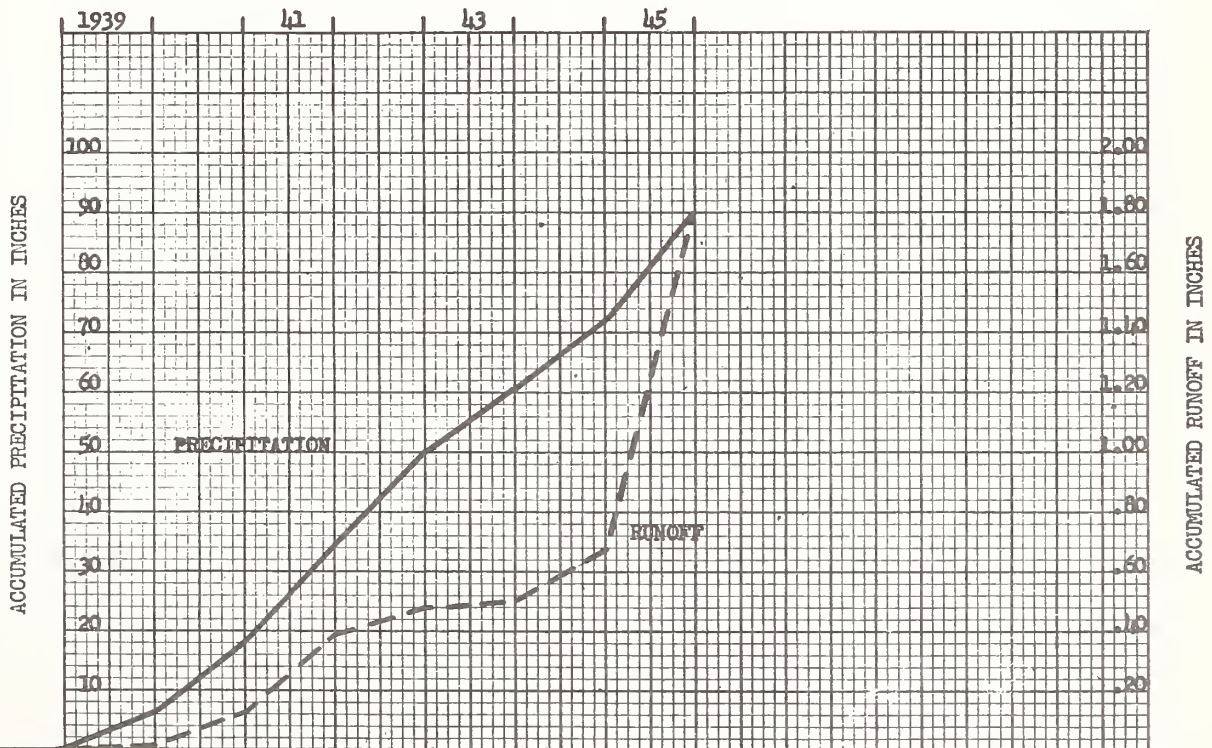
INSTRUMENTATION: Runoff - 30" triangular broadcrested concrete weir with 3:1 side slopes, 6-hr. chart; precipitation - two recording gages, 6-hr. charts.

WATERSHED CONDITIONS: Entire watershed is used for pasture which is overstocked and grazed continuously with consequent trampling and gradual supplanting of perennial grasses by weeds and annuals. Eastern 72% of area has principal grasses of blue grama and three-awn; middle 14% - blue grama; western 14% - under cultivation prior to 1914 and is becoming revegetated by natural processes.

GENERALLY REPRESENTS:

The Northern Brown Plains in Colorado and the Plains of Upper Arkansas and Purgatoire Rivers

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Colorado Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Colorado Springs, Colo., Watershed W-2

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P Q	NR NR	NR NR	NR NR	1.94 0	1.83 T	1.70 .04	1.46 .01	3.19 .06	3.25 .05	0.57 0	0.17 T	0.06 0	
1939	P Q	.15 0	.08 0	1.10 T	.63 T	.94 0	.26 0	.45 0	2.01 .01	.11 0	.08 0	.39 0	.10 0	6.30 .01
1940	P Q	.22 0	.15 T	.57 T	.43 T	2.52 .02	.52 0	2.95 .03	.87 T	3.00 .06	.08 0	.22 0	.07 0	11.60 .11
1941	P Q	.11 0	.06 0	1.63 T	1.64 T	1.21 T	2.08 .09	1.53 .01	3.94 .16	1.89 T	2.10 .01	.43 0	.05 0	16.67 .27
1942	P Q	.12 0	.30 0	.30 0	3.66 T	.63 T	3.49 .03	2.79 .04	1.55 .02	1.12 T	1.25 T	0 0	.15 0	15.36 .09
1943	P Q	.29 0	.17 0	.27 T	.92 0	2.41 T	1.27 T	2.66 .02	1.80 T	.03 0	.41 0	.46 0	.10 0	10.79 .02
1944	P Q	.07 T	.11 T	1.08 T	1.77 T	1.91 T	.53 0	3.52 .14	1.43 .03	.19 0	.38 0	.40 0	.07 0	11.46 .17
1945	P Q	.34 0	.22 0	.31 0	1.24 0	.64 0	1.62 T	6.94 .57	5.75 .57	.74 T	.17 0	.05 0	.10 0	18.12 1.14
1946	P Q	NR NR	NR NR	NR NR	1.35 0	1.41 T	1.36 .02	2.79 .10	2.71 .18	1.22 .01	.65 T	.26 0	NR NR	
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
	P Q													
**Av. P **Av. Q		1.19 T	.16 T	.75 T	1.47 T	1.47 T	1.40 .02	2.98 .12	2.48 .11	1.01 .01	.64 T	.28 0	.09 0	12.92 .26
Normal P		.21	.38	.72	1.60	2.22	1.79	2.81	2.30	1.13	.58	.33	.30	14.37

Notes: \*\*Does not include part year amounts for 1938 and 1946. Months of Sept.-April include snow and snow melt. Normal P based on 74 yr. record (1872-1945) at Colorado College, Colo. Quality of records: P - good; Q - good. NR denotes no record.



2-56

COLORADO SPRINGS, COLORADO Watershed W-3

LOCATION: El Paso Co., Colo.; 13 mi. NE of Colorado Springs; Black Squirrel Creek, Chico Creek, Arkansas River Basin.

AREA: 35.4 Ac.

SHAPE: Spear-head, outlet at large end; about 700 ft. wide by 2600 ft. long.

SLOPES: 18% is in 1-3% class; 50% in 3-5%; 28% in 5-9%; 4% in 9+%. Aspect N-NW.

SOILS: Parent material - light brown sandy clay loam, massive. 90% of area - mapping unit 215 (uncorrelated series), non-calcareous dark gray-brown to light olive-brown loam that is friable when moist with weak, medium to coarse sub-angular blocky structure. 10% of area - mapping unit 222 (uncorrelated series), non-calcareous gray-brown to black clay loam that is hard when dry and has slow permeability with weak fine prismatic to coarse structure.

EROSION: 1 - 100%.

LAND CAPABILITY: VI - 100%.

SURFACE DRAINAGE: Good; overland flow on southern 30%; uniform land slopes; principal waterway - 2450 ft.; drainage density - 100 ft. per ac.

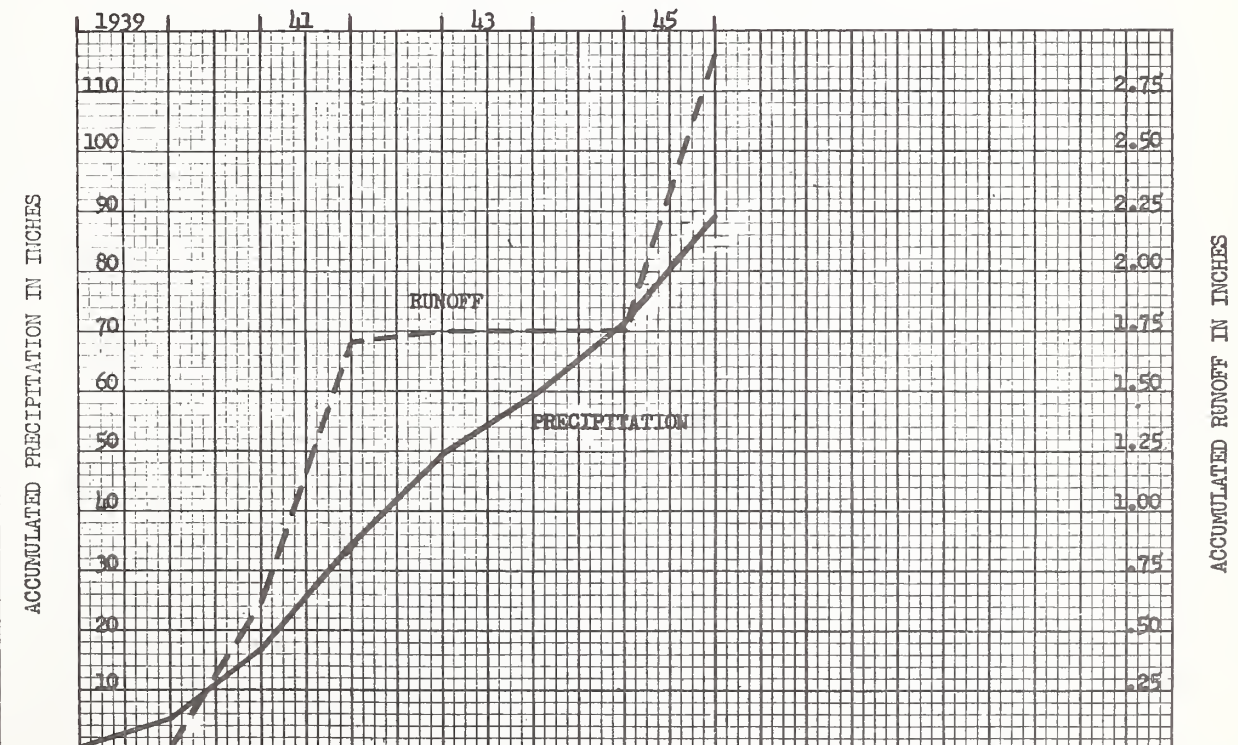
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 30" triangular broadcrested concrete weir with 3:1 side slopes, 6-hr. chart; precipitation - one recording gage, 6-hr. chart.

WATERSHED CONDITIONS: Entire watershed is grazing land. Middle 9% of area has vegetation of principally blue grama with some western wheat grass and sedges; remaining 91% has principally blue grama with some three-awn grass, prickly pear, cactus, and soapweed. During 1938 and 1939 a bad infestation of grasshoppers cropped all vegetation to a height of less than 1". In 1939 and 1940 soil cracked and pulled 3/4" away from weir.

GENERALLY REPRESENTS: The Northern Brown Plains in Colorado and the Plains of Upper Arkansas and Purgatoire Rivers.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Colorado Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Colorado Springs, Colo., Watershed W-3**

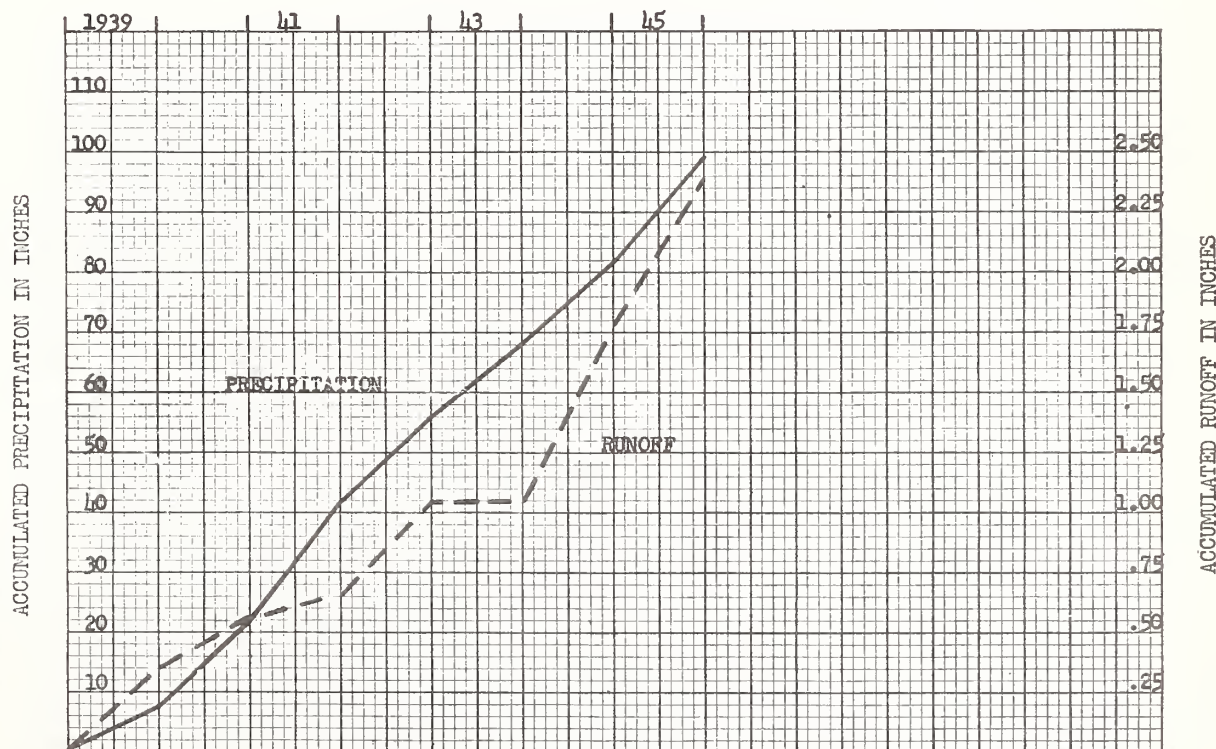
Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q	NR NR	NR NR	NR NR	1.27 0	1.70 T	1.26 .04	2.09 .05	3.31 .26	3.53 .62	0.39 0	0.09 0	0.04 0	
1939 P Q	.15 0	.08 0	1.05 0	.51 0	.74 0	.22 0	.43 0	1.38 T	.06 0	.12 0	.40 0	.10 0	5.24 0
1940 P Q	.22 0	.15 0	.57 0	.36 0	2.20 T	.48 T	3.88 .49	.52 T	3.05 .13	.05 0	.18 0	.07 0	11.73 .62
1941 P Q	.11 0	.06 0	1.63 0	1.61 0	1.23 0	2.99 .46	1.44 T	4.27 .64	1.66 0	1.87 T	.41 0	.05 0	17.33 1.10
1942 P Q	.12 0	.30 0	.30 0	3.46 T	.51 0	3.76 T	2.41 .03	1.56 0	1.27 0	1.06 0	0 0	.15 0	14.90 .03
1943 P Q	.29 0	.17 0	.27 0	.96 0	2.47 0	1.18 0	1.98 0	1.49 0	.01 0	.41 0	.46 0	.11 0	9.30 0
1944 P Q	.07 0	.11 0	1.08 0	1.96 0	2.22 0	.56 0	3.67 .01	1.59 T	.27 0	.38 0	.10 0	.07 0	12.38 .01
1945 P Q	.34 0	.22 0	.31 0	1.24 0	.74 0	1.33 0	6.73 .64	5.56 .50	1.08 T	.18 0	.05 0	.10 0	17.88 1.14
1946 P Q	NR NR	NR NR	NR NR	1.16 0	.98 0	.75 0	3.03 T	3.19 .02	.12 0	.94 0	1.44 0	NR NR	
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
**Av. P **Av. Q	.19 0	.16 0	.74 0	1.44 T	1.44 T	1.50 .07	2.93 .17	2.34 .16	1.06 .02	.58 T	.27 0	.09 0	12.74 .42
Normal P	.21	.38	.72	1.60	2.22	1.79	2.81	2.30	1.13	.58	.33	.30	14.37

**Notes:** \*\*Does not include part year amounts for 1938 and 1946. This station closed during months of Jan., Feb., March, and Dec.; amounts shown for these months are based upon auxiliary gage on Watershed W-2. Months of Sept.-April include snow and snow melt. Normal P based on 74 yr. record (1872-1945) at Colorado College, Colo. Quality of records: P - good; Q - good. NR denotes no record.

2-56

COLORADO SPRINGS, COLORADO Watershed W-4LOCATION: El Paso Co., Colo.; 19.5 mi. NE of Colorado Springs; Black Squirrel Creek, Chico Creek, Arkansas River Basin.AREA: 35.6 ac.SHAPE: Obtuse-triangle, outlet at smallest angle; about 900 ft. wide by 2250 ft. long.SLOPES: 43% is in 3-5% class; 46% in 5-9%; 11% in 9+%. Aspect E-SE.SOILS: Parent material - Dawson arkose formation of porous tan gravelly sand. All series uncorrelated. 60% of area - mapping unit 13, non-calcareous, massive gray-brown gravelly sandy loam, hard when dry and friable when moist. 3% of area - mapping unit 14, non-calcareous gray to black gravelly sandy clay loam, friable when moist, weak fine crumb to sub-angular blocky structure. 35% of area - mapping unit 11, non-calcareous gray-brown gravelly loamy sand, friable when moist, single grained to weak very fine crumb structure. 2% of area - mapping unit 30, non-calcareous upland swale soil.EROSION: 1 - 100%.LAND CAPABILITY: VI - 100%.SURFACE DRAINAGE: Good; principal waterway - 2400 ft.; drainage density - 180 ft. per ac.; two principal waterways whose confluence is immediately above the weir require consideration of two subwatersheds.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 30" triangular broadcrested concrete weir with 3:1 side slopes, 6-hr. chart; precipitation - two recording gages, 6-hr. charts.WATERSHED CONDITIONS: Entire watershed is grazing land. 7% of area along waterways has vegetation of almost exclusively blue grama with a few rushes and sedges; remaining 93% has principally blue grama, silver sage, and club moss. In 1939 grass fire burned over approximately five acres, on northeast side. The recent practice has been to graze watershed during summer months only.GENERALLY REPRESENTS: The Northern Brown Plains in Colorado and the Plains of Upper Arkansas and Purgatoire Rivers.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Colorado Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Colorado Springs, Colo., Watershed W-4

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q	NR NR	NR NR	NR NR	2.73 0	2.81 T	1.62 .01	2.31 .02	4.32 .68	4.33 .07	0.33 0	0.04 0	0.08 0	
1939 P Q	.15 0	.56 0	1.23 0	.47 0	.92 T	.47 0	.74 0	2.64 .35	.22 0	.08 0	.26 0	.10 0	7.84 .35
1940 P Q	.29 0	.17 0	1.15 0	.76 T	3.11 .06	1.14 .02	4.01 .08	.31 0	2.92 .05	.05 0	.08 0	.07 0	14.06 .21
1941 P Q	.09 0	.07 0	1.47 0	1.73 0	2.09 .01	.98 0	3.70 .01	4.03 .06	2.07 T	2.22 .01	.30 0	1.05 0	19.80 .09
1942 P Q	.18 0	.13 0	.87 0	3.28 0	.36 *.26	3.93 .13	1.29 T	1.44 T	1.21 0	1.51 0	0 0	.21 0	14.41 .39
1943 P Q	.31 0	.09 0	.34 0	1.06 0	2.26 0	2.32 0	1.29 0	2.83 T	.15 0	.58 0	.67 0	.07 0	11.97 0
1944 P Q	.15 T	.57 0	1.05 0	1.88 T	2.90 *.55	.38 *.15	3.06 .04	2.30 T	.12 0	.37 0	.58 0	.24 0	13.60 .74
1945 P Q	.28 0	.39 T	.17 *T	1.07 T	1.31 0	2.65 .04	5.20 .16	4.58 .41	1.08 T	.53 T	.05 0	.08 0	17.39 .61
1946 P Q	NR NR	NR NR	NR NR	2.00 .01	.72 0	.72 0	4.09 .20	3.08 .01	.40 0	.71 0	2.50 0	NR NR	
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
P													
Q													
** Av. P ** Av. Q	.21 T	.28 T	.90 T	1.46 T	1.85 .13	1.70 .05	2.76 .04	2.59 .12	1.11 .01	.76 T	.28 0	.26 0	14.16 .35
Normal P	.21	.38	.72	1.60	2.22	1.79	2.81	2.30	1.13	.58	.33	.30	14.37

Notes: \* Includes ground water flow. \*\*Does not include part year amounts for 1938 and 1946. Months of Sept.-April include snow and snow melt. Normal P based on 74 yr. record (1872-1945) at Colorado College, Colo. Quality of records: P-good; Q-good. NR denotes no record



3-56

Albuquerque, New Mexico Watershed W-ILOCATION: Bernalillo Co., N.M.; 19 mi. NW of Albuquerque, Rio Puerco, Rio Grande Basin.AREA: 97.2 ac.SHAPE: "Y"; about 1500 ft. wide by 3600 ft. long.SLOPES: 26% is in 3-10% class; 74% in 10-35%. Aspect NE.

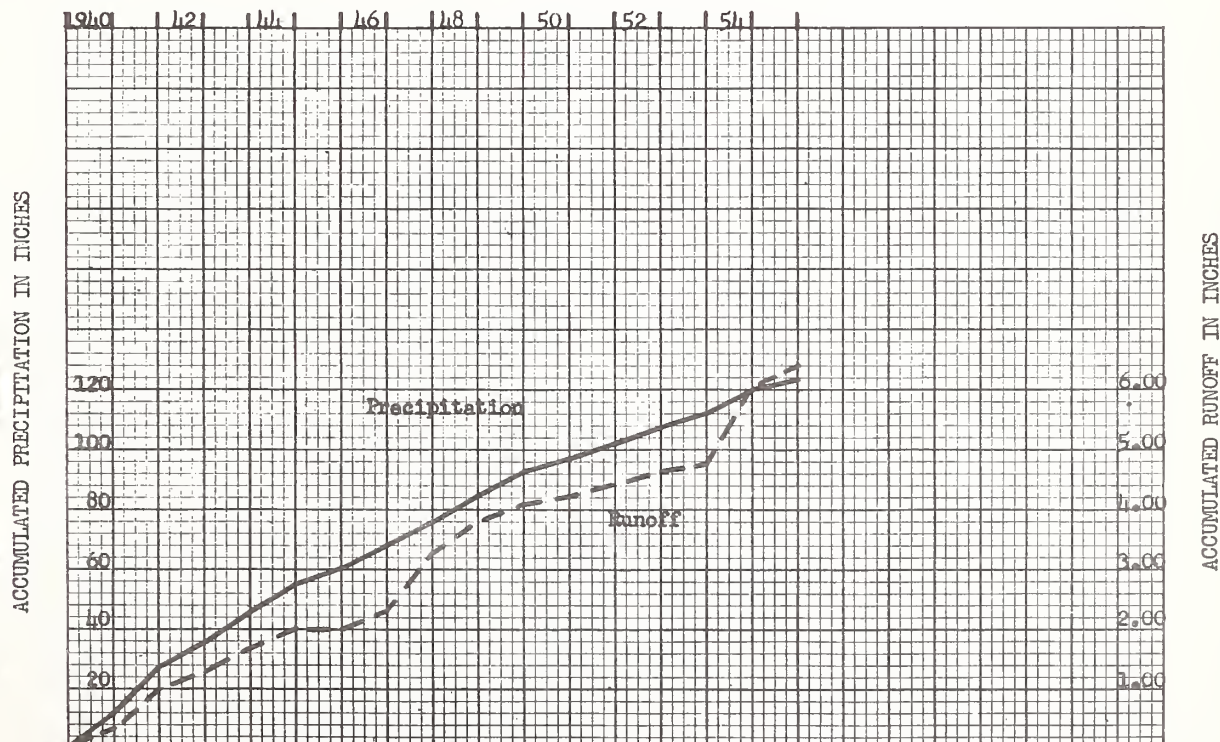
SOILS: Parent material - sandstone and shale. 22% of area - exposed soft coarse sandstone outcrop. 23% of area - tentative series is Travesilla, weak fine grain grav. loam, profile depth 5". 19% of area - tentative series is Chipeta, grav. silty loam, profile depth 3". 20% of area - tentative series is Progresso, single grain sandy loam 24" profile depth with weak coarse prismatic subsoil.

EPOSION: 2-20%; 3-80%.

10% of area - mapping unit 55N2 (uncorrelated series), loamy sand with profile depth of 24".  
6% of area - mapping unit 4441 (uncorrelated series), single grain sandy loam with profile depth of 60".

LAND CAPABILITY: VII - 36%; VIII - 64%SURFACE DRAINAGE: Good; principal waterway - 3900 ft.; drainage density - 100 ft. per ac. Runoff from flat upland area is retained by closed end terraces which artificially define southern boundary of watershed.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 16" triangular concrete weir with 3:1 side slopes, 6 hr chart; precipitation - 2 recording gages, one 12 hr. chart and one 192 hr. chart.WATERSHED CONDITIONS: Rough broken badland area. 77% of area is bare; short grasses (three-awn, blue and black grama, galleta, and riggrass) occupy 6% of the area; tall grasses and shrubs (alkali sacaton, sand sage, rabbitbrush, soapweed, and snakeweed) occupy 3% of the area; trees (juniper and pinon) occupy 14% of the area.GENERALLY REPRESENTS: Rio Grande Valley.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research project of USDA and New Mexico Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Albuquerque, N. M., Watershed W-I**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	NR NR	NR NR	.80 .04	1.75 .26	.94 .09	1.01 0	.28 0	
1940 P Q	.21 0	1.08 0	.15 0	.22 0	.94 0	.98 T	1.09 .09	2.11 .16	1.86 .09	.31 T	1.47 .02	1.44 0	11.86 .36
1941 P Q	.78 0	.19 0	1.73 0	1.46 0	2.59 .04	.45 0	1.08 .04	2.02 .10	2.96 .32	1.99 .15	.28 0	.44 0	15.97 .65
1942 P Q	0 0	.25 0	0 0	1.12 .01	0 0	1.35 .20	.48 0	2.01 .04	1.36 .04	.55 0	0 0	.77 0	7.89 .29
1943 P Q	.26 0	.36 0	.14 0	.15 0	1.13 0	2.03 .14	.52 0	2.65 .18	.91 .06	.31 0	.29 0	1.42 0	10.17 .38
1944 P Q	.17 0	.17 0	.44 0	.15 0	.51 0	.32 0	2.80 .11	1.42 .12	.53 0	1.48 .08	.76 0	.76 0	9.51 .31
1945 P Q	.57 0	.40 0	.41 0	.57 0	0 0	.03 0	.87 0	.99 0	.53 0	.46 0	0 0	.19 0	5.02 0
1946 P Q	.26 0	.04 0	.75 0	.25 0	.31 0	.03 0	.91 .01	2.22 .17	.60 T	.98 .14	1.26 0	0 0	7.61 .32
1947 P Q	.34 0	.13 0	.11 0	.15 0	.54 0	.14 0	.27 0	1.56 .06	3.08 .90	.19 0	.13 0	.74 0	7.38 .96
1948 P Q	.25 0	1.77 0	.05 0	.30 0	1.22 .08	1.02 .07	.44 0	2.05 .33	.70 T	1.50 .09	.08 0	.17 0	9.55 .57
1949 P Q	.62 0	.18 0	.48 0	.31 0	1.44 0	.96 .02	2.84 .25	.56 0	1.01 .01	.26 0	0 0	.18 0	8.84 .28
1950 P Q	0 0	.34 0	0 0	.40 0	.08 0	.31 .01	1.44 .06	.66 .05	.86 0	0 0	0 0	.04 0	4.13 .12
1951 P Q	.49 0	.24 0	.05 0	.29 0	.19 0	1.01 .05	.38 .01	1.26 .16	.20 0	.15 0	.12 0	.21 0	4.59 .22
1952 P Q	.50 0	0 0	.33 0	.51 0	.09 .02	1.59 .09	1.13 .10	.56 0	.46 0	0 0	.39 0	.18 0	5.74 .21
1953 P Q	.05 0	.42 0	1.16 0	.24 0	.11 0	.66 0	.63 .05	.54 .03	.06 0	.16 .03	.48 0	.07 0	4.58 .11
1954 P Q	.14 0	.05 0	.27 0	0 0	.50 0	1.68 .28	1.53 0	1.54 .23	1.35 .70	.43 .08	.02 0	.22 0	7.73 1.29
1955 P Q	.13 0	.12 0	0 0	.15 0	.61 0	.24 0	1.11 .27	.70 .07	.26 0	.01 0	0 0	.03 0	3.36 .34
P Q													
P Q													
P Q													
** Av. P ** Av. Q	.30 0	.36 0	.38 0	.39 T	.64 .01	.80 .05	1.10 .06	1.43 .11	1.05 .13	.55 .04	.33 T	.43 0	7.76 .40
Normal P	.28	.33	.44	.53	.87	.72	1.43	1.38	1.05	.64	.42	.59	8.68

**Notes:** \*\* Does not include part year amounts for 1939. Normal P based on 30 yr. record (1921 - 1950) at Albuquerque WB Airport. Quality of records: P - excellent; Q - excellent.  
NR denotes no record



3-56

Albuquerque, New Mexico Watershed W-IILOCATION: Bernalillo Co., N.M., 19 mi. NW of Albuquerque, Rio Puerco, Rio Grande Basin.AREA: 40.5 ac.SHAPE: Crescent; about 1000 ft. wide by 2150 ft. long.SLOPES: 64% is in 3-10% class; 36% in 10-35%. Aspect S-SE.

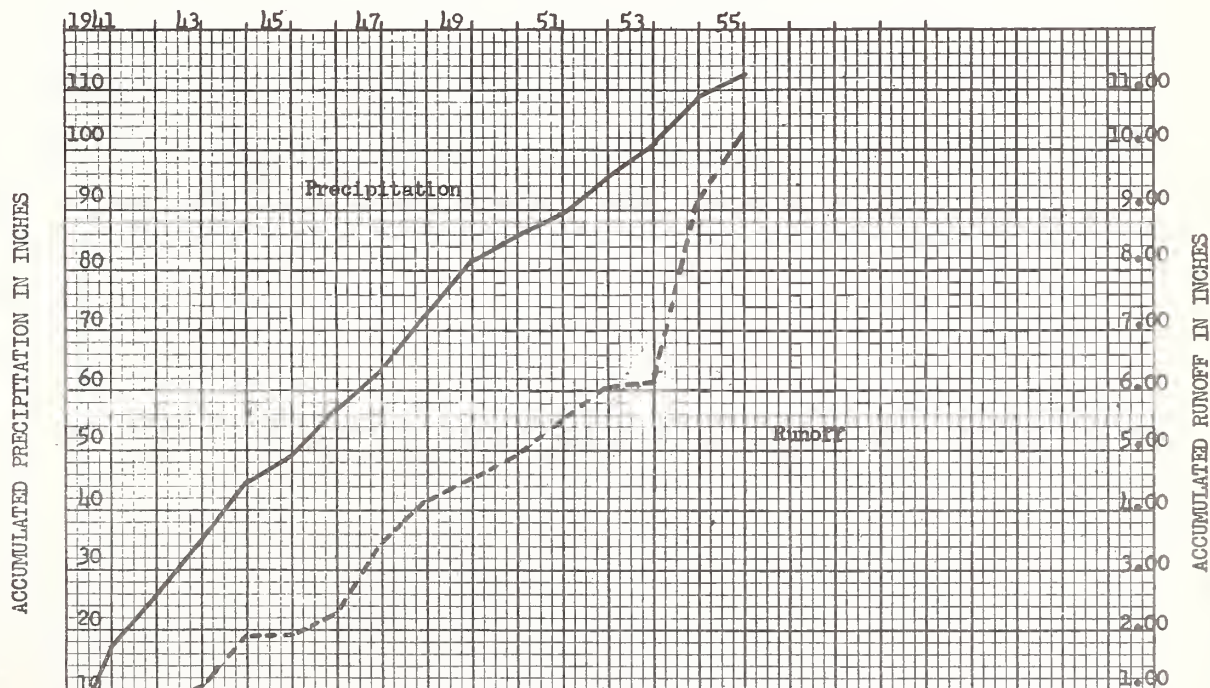
SOILS: Parent material - sandstone and shale. 36% of area - tentative series is Chipeta, moderately fine platy silty loam topsoil and weak fine angular blocky subsoil, profile depth of 12". 49% of area - tentative series is Billings, moderately coarse platy silty loam topsoil with weak coarse angular blocky subsoil, profile depth of 60". 15% of area - mapping unit 32N2 (uncorrelated series), weak medium platy silty loam topsoil with weak coarse angular blocky subsoil, profile depth of 30".

EROSION: 2-4%; 3-51%LAND CAPABILITY: VII - 100%SURFACE DRAINAGE: Good; principal waterway - 2670 ft.; drainage density - 86 ft. per ac; all boundaries naturally defined.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 16" triangular concrete weir with 3:1 side slopes, 6 hr. chart; precipitation - 2 recording gages, one 12 hr. chart and one 192 hr. chart.

WATERSHED CONDITIONS: Grazing land area. 80% of total area is bare. Remaining 20% consists of short grasses (blue and black grama, galleta, and ringgrass), tall grasses (alkali sacaton, and sand dropseed), and shrubs (sagebrush, saltbush, rabbit bush, winterfat, frankenia, snakewood, and soapweed). Vegetation is somewhat denser along lower two thirds of waterway.

GENERALLY REPRESENTS: Rio Grande Valley.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research project of USDA and New Mexico Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Albuquerque, N. M., Watershed W-II**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	NR NR	NR NR	1.66 .21	1.67 .32	.98 .14	NR 0	NR 0	
1940 P Q	NR 0	NR 0	NR 0	NR 0	.95 0	1.25 T	1.38 .06	1.92 .13	1.82 .11	.33 0	1.50 .02	1.55 0	
1941 P Q	1.05 0	.37 0	1.77 0	1.50 0	2.67 T	.72 T	1.13 T	2.23 .05	3.13 .37	1.98 .15	.32 0	.41 0	17.28 .41
1942 P Q	0 0	.20 0	0 0	1.22 0	0 0	1.13 .15	.30 0	1.90 T	1.61 16	.55 0	0 0	.79 0	7.70 .31
1943 P Q	.21 0	.33 0	.19 0	.12 0	.89 0	2.13 .06	.49 0	2.32 .13	.86 .15	.29 0	.28 0	1.35 0	9.46 .34
1944 P Q	.16 0	.15 0	.45 0	.10 0	.48 0	.19 0	3.31 .24	1.41 .21	.55 0	1.58 .42	.75 0	.76 0	9.89 .87
1945 P Q	.48 0	.29 0	.31 0	.37 0	0 0	0 0	.57 0	1.18 0	.54 0	.51 0	0 0	.20 0	4.45 0
1946 P Q	.29 0	.03 0	.73 0	.19 0	.30 0	.15 0	1.02 0	2.20 .14	.66 0	.87 .22	1.19 0	0 0	7.63 .36
1947 P Q	.35 0	.14 0	.11 0	.09 0	.66 0	.18 0	.19 0	1.57 .01	3.06 1.12	.15 0	.14 0	.56 0	7.20 1.13
1948 P Q	.22 0	1.58 0	.01 0	.20 0	.89 .05	1.05 .03	.33 0	1.99 .49	.73 0	1.57 .18	.07 0	.18 0	8.82 .75
1949 P Q	.44 0	.13 0	.36 0	.37 0	1.59 .04	.98 .03	2.90 .16	.91 .04	.96 .10	.38 0	0 0	.15 0	9.17 .37
1950 P Q	0 0	.18 0	0 0	.48 0	.03 0	.26 .03	1.62 .18	.80 .14	.93 .01	0 0	0 0	.05 0	4.35 .36
1951 P Q	.37 0	.22 0	.07 0	.29 0	.23 0	.86 .22	.31 0	.91 .38	.19 0	.08 0	.07 0	.12 0	3.72 .60
1952 P Q	.22 0	.02 0	.39 0	.64 .01	.14 0	1.62 .17	1.34 .25	.68 .11	.64 0	0 0	.43 0	.13 0	6.25 .54
1953 P Q	0 0	.51 0	.99 0	.25 0	.13 0	.68 0	.54 0	1.05 .40	.02 0	.12 0	.45 0	.02 0	4.76 .11
1954 P Q	.11 0	.04 0	.23 0	.01 0	.61 .02	1.62 .57	1.80 .88	1.29 .67	1.14 .57	.51 .31	.03 0	.18 0	7.57 3.02
1955 P Q  P Q  P Q	.06 0  0  0  0	.09 0  0  0  0	0 0  0  0  0	.10 0  0  0  0	.62 0  0  0  0	.20 0  0  0  0	.97 .24  0  0  0	1.32 .60  0  0  0	.35 .23  0  0  0	.01 0  0  0  0	0 0  0  0  0	.06 0  0  0  0	3.78 1.07  0  0  0
** Av. P ** Av. Q	.26 0	.29 0	.37 0	.40 T	.62 .01	.78 .08	1.12 .13	1.45 .22	1.02 .18	.57 .09	.25 0	.33 0	7.46 .70
Normal P	.28	.33	.44	.53	.87	.72	1.43	1.38	1.05	.64	.42	.59	8.68

Notes: \*\* Does not include part year amounts for 1939 and 1940. Normal P based on 30 yr. record (1921 - 1940) at Albuquerque WB Airport. Quality of records: P - excellent; Q - excellent. NR denotes no record.

LOCATION: Bernalillo Co., N. M.; 19 mi. NW of Albuquerque, Rio Puerco, Rio Grande Basin.

AREA: 155 ac. 1939-1946  
183 ac. 1947-1955

SHAPE: "Tn"; about 1950 ft. wide by 4050 ft. long.

SLOPES: 18% is in 0-3% class; 64% in 3-10%; 18% in 10-35%. Aspect E-SE.

SOILS: Parent material - sandstone and shale. 18% of area - tentative series is Chipeta, moderately platy silty loam topsoil with weak coarse platy subsoil, profile depth of 15". 18% of area - tentative series is Billings, moderately platy silty loam topsoil with weak coarse angular blocky subsoil, profile depth of 60". 18% of area - tentative series is Cuates, moderately coarse platy silty loam topsoil with weak coarse angular blocky subsoil, profile depth of 30". 46% of area - mapping unit is 32N2 (uncorrelated series), weak very fine grain loam topsoil with weak coarse angular blocky subsoil, profile depth of 30".

LAND CAPABILITY: VII - 100%.

SURFACE DRAINAGE: Good; principal waterway - 5370 ft.; drainage density - 75 ft. per ac. Contour furrows on northern 15% of area give evidence of runoff retardation for years 1939-1946.

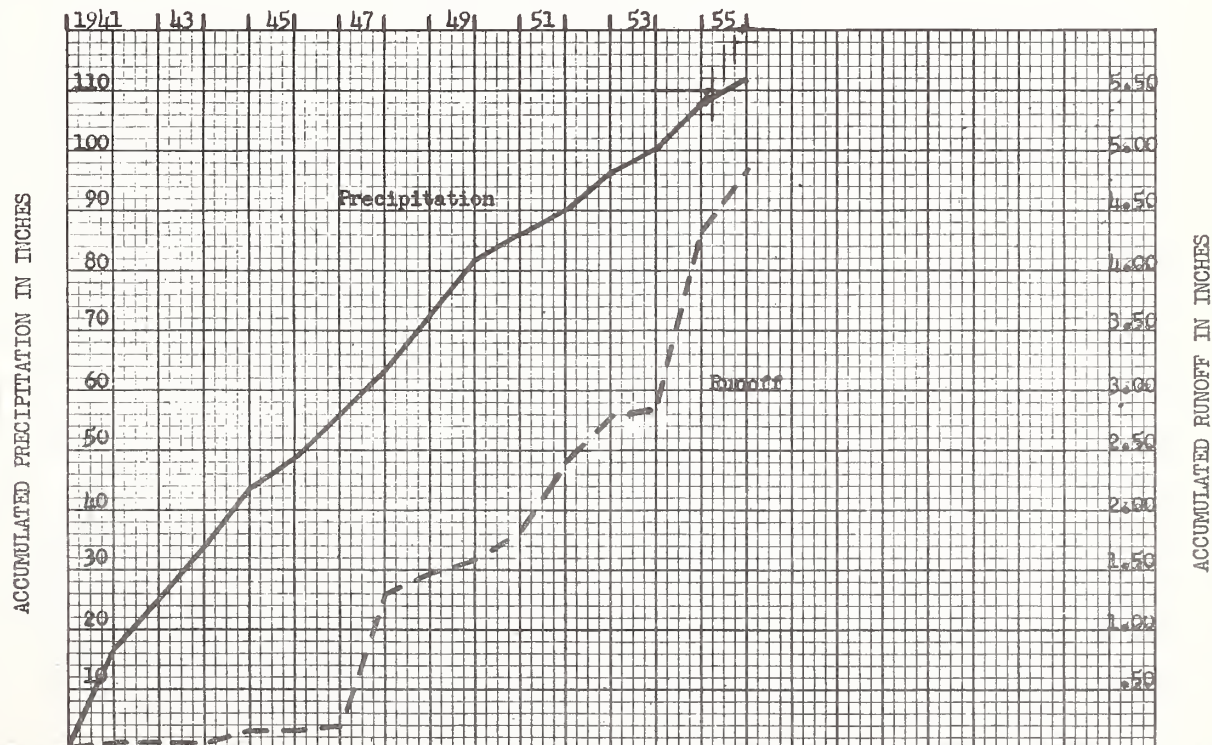
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16" triangular concrete weir with 3:1 side slopes, 6 hr. chart; precipitation - 2 recording gages, 12 hr. charts.

WATERSHED CONDITIONS: Principally grazing land. 75% of area is bare. Remaining portion consists of short grasses (blue and black grama, galleta, creeping muhly and ringgrass), tall grasses (alkali sacaton, spike, and sand dropseed), and shrubs (sagebrush, saltbush, winterfat, frakenia, snakeweed, and soapweed). Vegetation is comparatively heavy on a narrow strip along most of the principal waterway and along the first northern tributary. Northern 15% of area has been contour furrowed prior to 1939.

GENERALLY REPRESENTS: Rio Grande Valley.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Albuquerque, N. M., Watershed W-III**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P	NR	NR	NR	NR	NR	NR	.15	1.69	1.58	.95	.03	NR	
Q	NR	NR	NR	NR	NR	NR	0	0	.01	0	0	NR	
1940 P	NR	NR	NR	.04	.83	1.26	1.41	1.88	1.81	.33	1.49	1.61	
Q	NR	NR	NR	0	0	T	0	0	0	0	0	0	
1941 P	1.07	.36	1.71	1.47	2.77	.74	1.14	2.21	3.13	1.96	.30	.41	17.27
Q	0	0	0	0	0	0	0	T	.01	.03	0	0	.04
1942 P	0	.21	0	1.24	0	1.07	.28	1.88	1.59	.57	0	.82	7.66
Q	0	0	0	0	0	T	0	0	T	0	0	0	0
1943 P	.22	.35	.19	.13	.73	2.11	.50	2.40	.80	.30	.29	1.32	9.34
Q	0	0	0	0	0	T	0	0	T	0	0	0	0
1944 P	.16	.17	.45	.10	.46	.20	3.45	1.35	.53	1.50	.75	.77	9.89
Q	0	0	0	0	0	0	.01	.01	0	.09	0	0	.11
1945 P	.57	.26	.29	.32	0	0	.56	1.20	.52	.52	0	.20	4.44
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1946 P	.30	.03	.70	.20	.31	.16	1.08	2.24	.65	.91	1.20	0	7.78
Q	0	0	0	0	0	0	0	.01	0	.03	0	0	.04
1947 P	.37	.15	.12	.08	.68	.17	.20	1.64	3.06	.16	.11	.54	7.28
Q	0	0	0	0	0	0	0	0	1.12	0	0	0	1.12
1948 P	.22	1.61	0	.18	.88	1.05	.30	1.98	.74	1.61	.07	.18	8.82
Q	0	0	0	0	T	T	0	.16	0	.01	0	0	.17
1949 P	.41	.13	.24	.44	1.62	1.00	3.00	.96	.91	.41	0	.16	9.28
Q	0	0	0	0	.01	T	.08	.01	0	.01	0	0	.11
1950 P	0	.15	0	.48	.03	.26	1.64	.83	.96	0	0	.05	4.40
Q	0	0	0	0	0	T	.16	.07	0	0	0	0	.23
1951 P	.34	.24	.08	.32	.24	.85	.28	.72	.19	.11	.10	.13	3.60
Q	0	0	0	0	0	.15	0	.43	0	0	0	0	.58
1952 P	.30	.03	.40	.69	.15	1.61	1.35	.73	.48	0	.43	.13	6.30
Q	0	0	0	0	0	.15	.18	.05	0	0	0	0	.38
1953 P	0	.47	.88	.25	.11	.70	.52	.86	.01	.16	.46	.01	4.43
Q	0	0	0	0	0	0	0	.06	0	0	0	0	.06
1954 P	.06	.03	.20	0	.51	1.55	2.04	1.27	1.10	.48	.05	.20	7.49
Q	0	0	0	0	.05	.55	.35	.54	0	0	0	0	1.49
1955 P	.06	.09	0	.13	.64	.22	.98	1.32	.41	0	0	.05	3.90
Q	0	0	0	0	0	0	.09	.42	0	0	0	0	.51
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** Av. P	.27	.29	.35	.40	.61	.78	1.15	1.44	1.01	.58	.25	.33	7.46
** Av. Q	0	0	0	0	T	.06	.06	.12	.07	.01	0	0	.32
Normal P	.28	.33	.44	.53	.87	.72	1.43	1.38	1.05	.64	.42	.59	8.68

**Notes:** \*\* Does not include part year amounts for 1939 and 1940. Normal P based on 30 yr. record (1921 - 1950) at Albuquerque WB Airport. Quality of records: P - excellent; Q - excellent. NR denotes no record.



MEXICAN SPRINGS, NEW MEXICO Watershed W-1

12-57

LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 187 ac.

SHAPE: Egg, about 2,900 ft. wide by 4,080 ft. long.

SLOPES: 22% in 0-3% class; 59% in 3-7%; 15% in 7-10%; 4% in 10-50%. Aspect S-SE.

SOILS: Progresso loam - moderately deep soil with medium textured surface soil and moderately permeable subsoil, residual from sandstone and loess - 55%. Shallow, calcareous loam surface, moderately permeable subsoil, residual from sandstone - 28%. Alluvial soil, calcareous sandy clay loam surface, moderately permeable subsoil - 17%.

EROSION: 1 - 55%; 2 - 45%.

LAND CAPABILITY: VI - 72%; VII - 28%.

SURFACE DRAINAGE: Good, length of principal waterway - 1.10 mi.

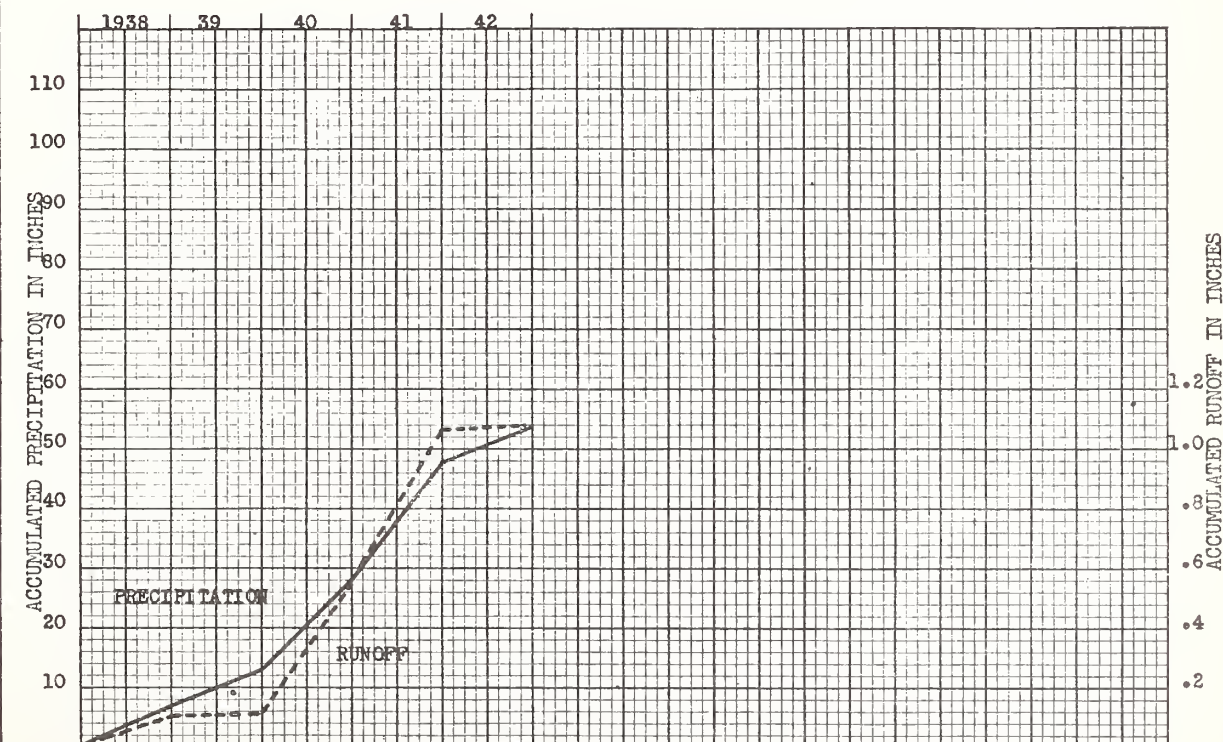
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 8 ft. Cippoletti weir; continuous water stage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: About 90% of area is bare. Vegetation consists of short grasses (galleta, blue grama, and red three-awn, with scattering of needle-grass).

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex. Watershed W-1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P	NR	NR	NR	*0.14	*0.19	2.12	0.75	1.17	1.45	*0.09	*0.11	*0.59	6.61
Q	NR	NP	NR	0	0	0	T	.11	0	0	0	0	.11
1939 P	.82	.21	.53	.81	.23	0	.50	.81	1.23	.36	.41	.34	6.25
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1940 P	*.61	*.85	.23	.18	1.18	1.07	1.80	1.17	3.44	.83	*.72	*1.74	13.82
Q	0	0	0	0	0	T	.12	0	.28	0	0	0	.40
1941 P	*.71	*.77	*2.04	1.93	2.87	.64	1.46	1.94	3.29	3.44	*.32	*.58	19.99
Q	0	0	0	0	0	T	.17	.02	T	.35	0	0	.54
1942 P	*T	*.94	*.37	.55	.03	0	.84	.55	.82	1.08	.03	*1.12	6.33
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
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**Av. P	.54	.69	.79	.87	1.08	.43	1.15	1.12	2.19	1.43	.37	.94	11.60
**Av. Q	0	0	0	0	0	0	.07	.01	.07	.09	0	0	.24
Normal P	.70	.60	.59	.50	.81	.50	1.41	1.60	1.44	.89	.55	.63	10.22

Notes: \*\*Does not include part year amounts for 1938. Months of Jan., Feb., Mar., Nov., and Dec. include snow and snow melt. Runoff for years 1939 and 1940 include considerable amount of silt. \* Based on estimates of gage No. 2 (elev. 6,437 ft.) located outside of watershed. Normal P based on 27 yr. record (1924-1950) at Tohatchi, N. M. (elev. 6,800 ft.). Quality of records: P-poor; Q-poor.

12-57

MEXICAN SPRINGS, NEW MEXICO Watershed W-2

LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 610 ac.

SHAPE: Rectangular, about 6,000 ft. wide by 9,200 ft. long.

SLOPES: 12% is in 0-10% class; 25% in 10-30%; 60% in 30-60%; 3% in 60-100%; T in over 100%.

Aspect E-SE.

SOILS: Rough broken sandstone land - 76%. Rough broken eroded shale - sandstone complex - 22%.

Alluvial soil, calcareous sandy clay loam surface, moderately permeable subsoil - 2%.

EROSION: 2 - 78%; 3 - 22%.

LAND CAPABILITY: VI - 2%; VII - 76%; VIII - 22%.

SURFACE DRAINAGE: Good, length of principal waterway - 1.78 mi.

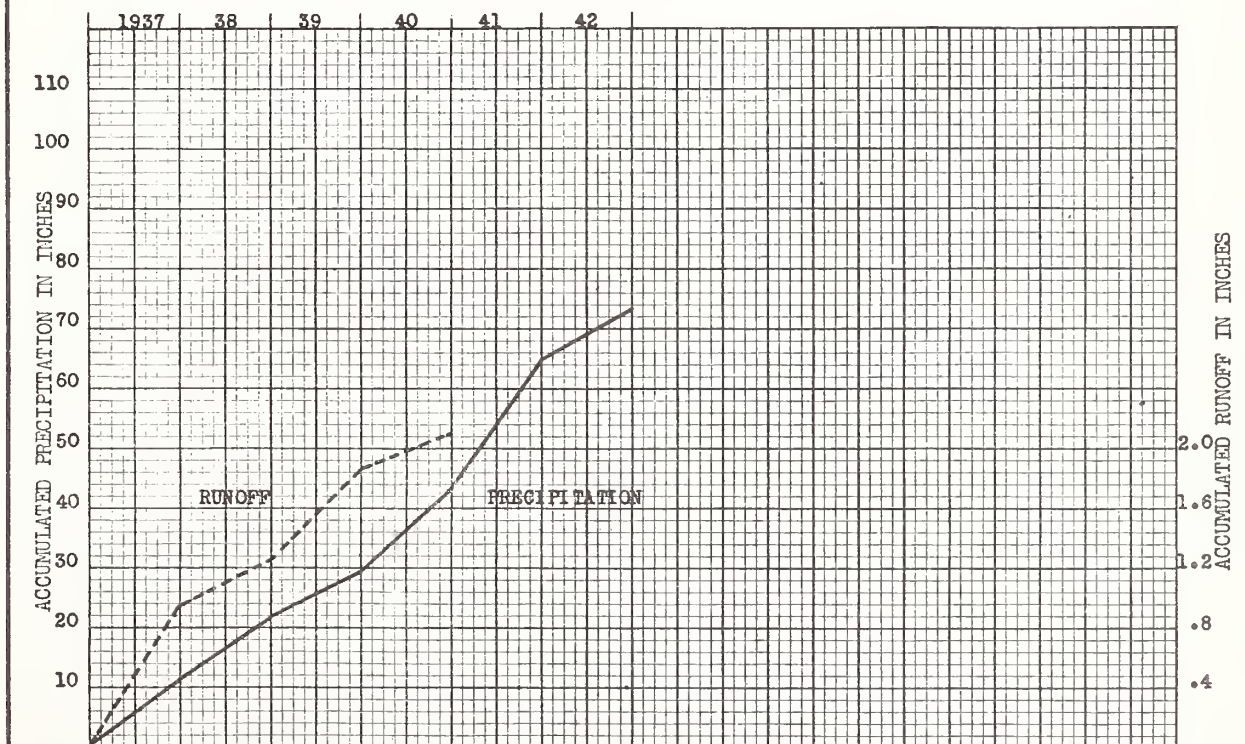
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 10 ft. Parshall flume; continuous water stage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: About 80% of area is bare. Vegetation consists of pinon and juniper, with sparsely scattered understory of short grasses (blue grama and western wheat grass).

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P	*0.58	*1.22	*0.79	*0.22	*1.41	0.40	1.65	1.53	1.64	*0.30	*0.16	*0.60	10.50
Q	0	0	0	0	0	0	.27	.22	.39	0	0	0	.88
1938 P	*.34	*1.40	*1.55	*.66	*.47	1.92	.35	1.50	1.14	*.20	*.15	*.61	10.29
Q	0	0	0	0	0	.01	0	.40	.12	0	0	0	.53
1939 P	*.99	*.25	*.89	1.11	.16	0	1.60	1.56	1.00	.59	*.56	*.39	9.10
Q	0	0	0	0	0	0	.14	.17	.01	0	0	0	.32
1940 P	*.66	*.78	*.31	.33	.86	.85	1.30	1.47	3.11	.96	*.94	*2.00	13.57
Q	0	0	0	0	0	T	.02	.04	.06	0	0	0	.12
1941 P	*1.04	*.64	*1.86	2.27	2.66	.49	1.50	1.96	3.40	3.75	*.30	*.77	20.64
Q	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1942 P	*.03	*1.01	*.38	1.38	.05	.03	.88	1.08	1.37	1.46	*.05	*1.52	9.24
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12-57 MEXICAN SPRINGS, NEW MEXICO Watershed W-3  
LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 1,325 ac. (2.070 sq. mi.) SHAPE: Arrow-head, about 1.16 mi. wide by 2.88 mi. long.

SLOPES: 19% is in 0-10% class; 39% in 10-30%; 39% in 30-60%; 3% in 60-100%; 1% in over 100%.  
Aspect S-SW.

SOILS: Rough broken eroded shale - sandstone complex - 93%. Rough broken sandstone land - 6%.  
Colluvial soil, non-calcareous sandy clay loam, slowly permeable B<sub>2</sub> horizon - 1%.

EROSION: 2 - 7%; 3 - 93%.

LAND CAPABILITY: VI - 1%; VII - 6%; VIII - 93%.

SURFACE DRAINAGE: Good, length of principal waterway - 3.07 mi.

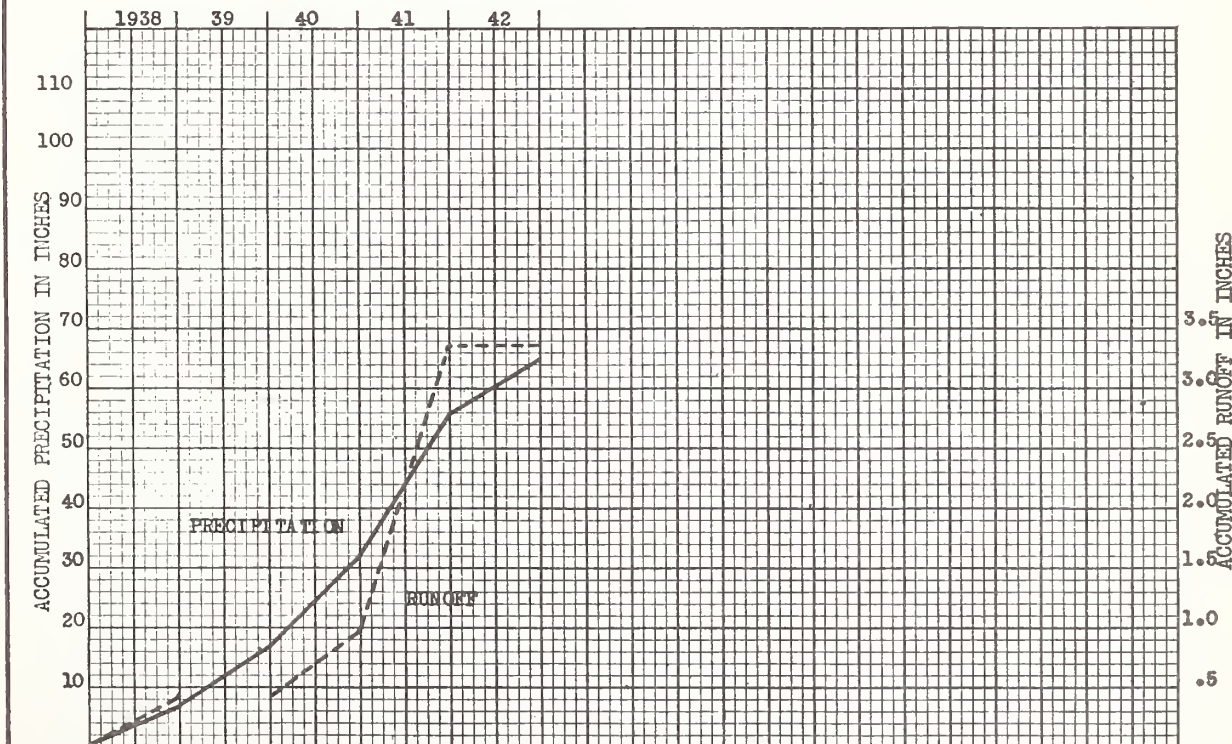
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - artificial control, rating established by current meter; continuous water stage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: 80 to 90% of area is bare; vegetation consists of pinon and juniper with scattered shrubs (mountain mahogany and serviceberry).

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-3**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P	NR	NR	NR	NR	*0.60	2.15	0.47	1.39	0.95	*0.05	*0.29	*0.84	6.74
Q	NR	NR	NR	NR	0	.03	.05	.33	.02	0	0	0	.43
1939 P	1.33	.43	.57	.83	.22	0	1.84	1.38	1.29	.61	.96	.42	9.88
Q	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940 P	.86	1.98	.29	.35	1.03	.88	1.55	1.86	2.58	.89	1.19	2.54	15.10
Q	0	0	0	0	0	.01	.12	.11	.29	0	0	0	.53
1941 P	1.42	1.10	2.12	1.84	2.51	.84	1.70	3.48	3.08	3.69	*.44	*1.04	23.26
Q	0	.02	T	.01	.22	.03	.38	.87	.20	.68	0	0	2.41
1942 P	*.03	*1.01	*.38	1.38	.05	.03	.88	1.08	1.37	1.46	*.05	*1.62	9.34
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
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**Av. P	.77	1.06	.93	1.19	1.20	.59	1.38	2.14	2.34	2.01	.56	1.73	15.90
**Av. Q	0	.01	0	0	.07	.01	.17	.33	.16	.23	0	0	.98
Normal P	.70	.60	.59	.50	.81	.50	1.41	1.60	1.44	.89	.55	.63	10.22

Notes: \*Based on gages Nos. 3 & 4 (elev. 6900 & 8014 ft. resp.) located outside of watershed. Months of Jan., Feb., Mar., Nov., and Dec. include snow and snow melt. Runoff for yr. 1940 includes considerable amount of silt. \*\*Does not include part yr. amounts for 1938 and 1939. Normal P based on 27-yr. record (1924-1950) at Tohatchi, N. M. (elev. 6800 ft.). Quality of records: p - poor; Q - poor.



MEXICAN SPRINGS, NEW MEXICO Watershed W-6

12-57

LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 5,550 ac. (8.67 sq. mi.) SHAPE: Club, about 2.65 mi. wide by 6.06 mi. long.

SLOPES: 23% is in 0-10% class; 43% in 10-30%; 23% in 30-60%; 9% in 60-100%; 2% in over 100%.  
Aspect S-SE.

SOILS: Eroded rough broken shale-sandstone complex - 59%. Rough broken sandstone land 17%. Rough broken eroded sandy sandstone land - 5%. Rough broken sandy sandstone land - 10%. Progresso loam - moderately deep soil with medium textured surface soil and moderately permeable subsoil, residual from sandstone and loess - 3%. Shallow soil, non-calcareous loam surface, moderately permeable subsoil residual from sandstone - 1%. Alluvial soil, calcareous sandy clay loam surface, moderately permeable subsoil - 5%.

EROSION: 2 - 36%; 3 - 64%.

LAND CAPABILITY: VI - 9%; VII - 27%; VIII - 64%.

SURFACE DRAINAGE: Good, length of principal waterway - 7.20 mi.

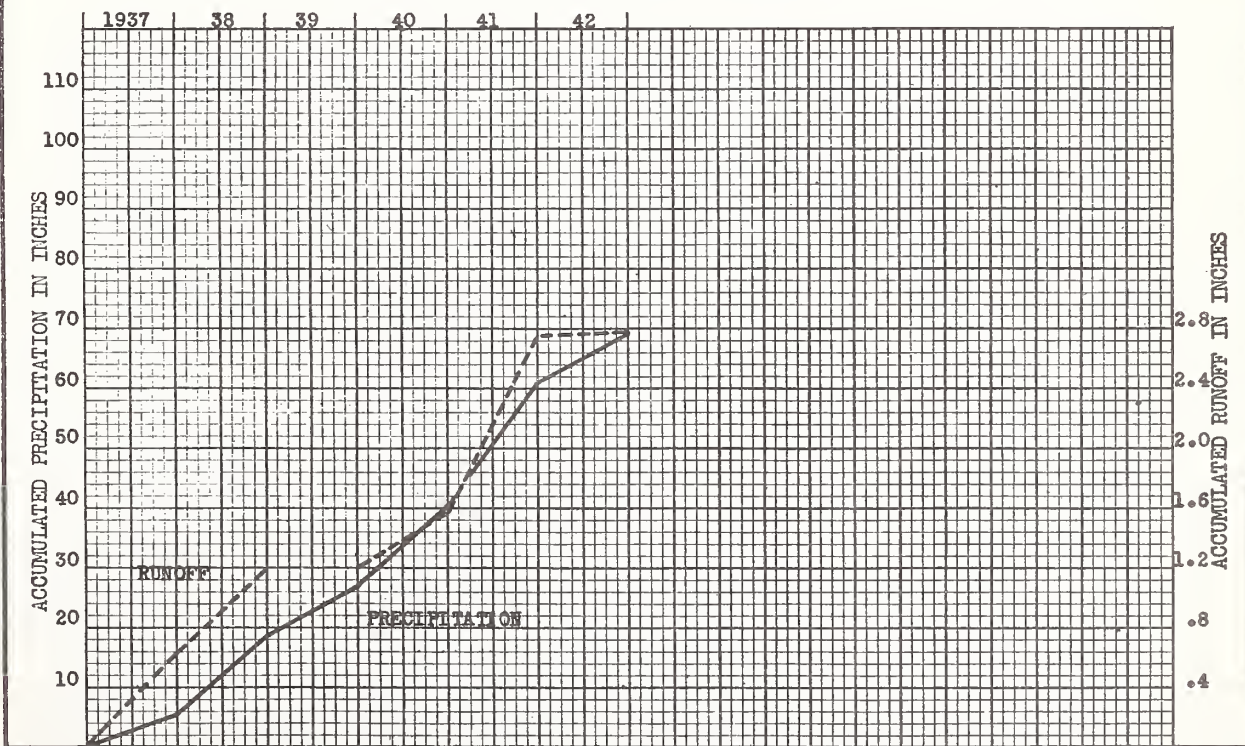
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - artificial control, rating established by current meter; continuous water stage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: 80 to 90% of area is bare. Vegetation consists of pinon and juniper with scattered shrubs (mountain mahogany and serviceberry) and scattered ponderosa pine in upper portion of area.

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-6**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P	NR	NR	NR	NR	NR	0	1.41	1.19	1.92	*0.36	*0.16	*0.95	5.99
Q	NR	NR	NR	NR	NR	0	.11	.20	.30	0	0	0	.61
1938 P	*.49	*1.83	*2.66	*.29	*.60	2.03	.44	1.37	1.34	*.05	*.29	*.84	12.23
Q	0	0	0	0	0	.02	.17	.31	.09	0	0	0	.59
1939 P	.99	.25	.89	.98	.19	0	1.25	1.19	1.28	.42	.56	.39	8.39
Q	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1940 P	.66	.77	.30	.35	1.31	.79	1.43	1.48	2.86	.78	.87	2.00	13.60
Q	0	0	0	0	.03	.03	.05	.06	.22	T	0	0	.39
1941 P	1.02	.65	1.89	1.54	3.05	.61	1.18	2.90	2.99	3.52	.30	.77	20.42
Q	0	0	0	0	.10	T	.16	.46	.09	.36	0	0	1.17
1942 P	.03	1.01	.38	1.05	.02	.03	.81	.84	1.23	1.12	.05	1.54	8.11
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
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** Av. P	.55	1.07	1.31	.81	1.24	.86	.96	1.65	2.10	1.37	.38	1.29	13.59
** Av. Q	0	0	0	0	.03	.01	.10	.21	.10	.09	0	0	.54
Normal P	.70	.60	.59	.50	.81	.50	1.41	1.60	1.44	.89	.55	.63	10.22

Notes: \*Based on gages Nos. 3 & 4 (elev. 6900 and 8014 ft. resp.). No. 4 located outside of watershed. Months of Jan., Feb., Mar., Nov., and Dec. include snow and snow melt. Runoff for yr. 1940 includes considerable amount of silt. \*\*Does not include part yr. amounts for 1937 and 1939. Normal P based on 27-yr. record (1924-1950) at Tohatchi, N. M. (elev. 6800 ft.) Quality of records: P - poor; Q - poor.



MEXICAN SPRINGS, NEW MEXICO Watershed W-7

12-57  
LOCATION: McKinley Co., N.M.; 25 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 8,495 ac. (13.3 sq. mi.)      SHAPE: "V", about 2.46 mi. wide by 3.98 mi. long.

SLOPES: 33% is in 0-10% class; 51% in 10-30%; 10% in 30-60%; 5% in 60-100%; 1% in over 100%.  
Aspect E-SE.

SOILS: Rough broken sandstone land - 50%. Rough broken sandy sandstone land - 3%. Sandstone outcrop - 9%. Eroded rough broken shale-sandstone complex - 4%. Shallow soil, non-calcareous loam surface, moderately permeable subsoil, residual from sandstone - 13%. Moderately deep soil, non-calcareous loam chernozemic surface, moderately permeable prominent B<sub>2</sub>, residual from loamstone - 5%. Colluvial soil, non-calcareous sandy clay loam surface, slowly permeable prominent B<sub>2</sub> - 5%. Alluvial soil, calcareous sandy clay loam, moderately permeable subsoil - 3%. Alluvial soil, calcareous sandy clay loam, slowly permeable subsoil - 3%.

EROSION: 1 - 16%; 2 - 76%; 3 - 4%.

LAND CAPABILITY: IV - 5%; VI - 24%; VII - 56%; VIII - 13%.

SURFACE DRAINAGE: Good, length of principal waterway - 3.83 mi.

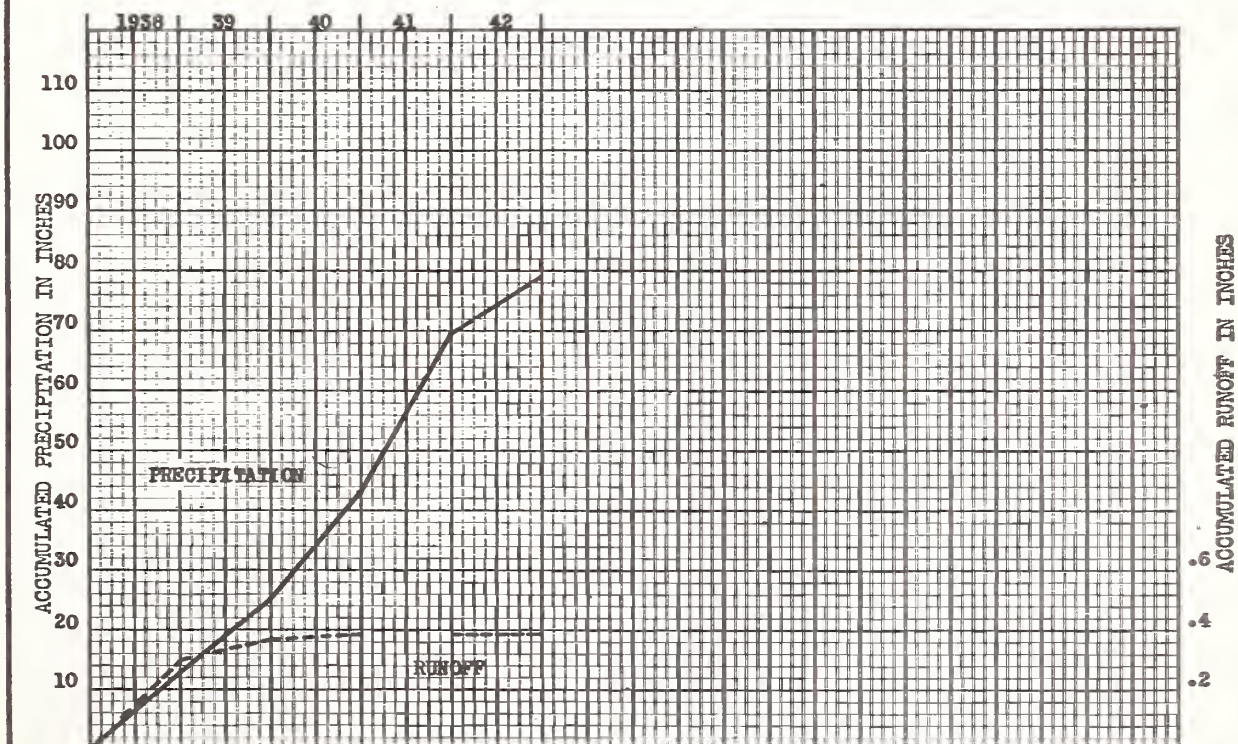
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - artificial control, rating established by current meter; continuous waterstage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: 75% of area is bare. Vegetation consists of open stands of ponderosa pine and pinon with some juniper. Up to 3% grass understory consisting of blue grama, western wheatgrass. Mountain mahogany and serviceberry shrubs interspersed among pinon. 1.5 to 2 sq. mi. is bare rock with ponderosa pine and pinon scattered in crevices.

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-7**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P	*0.49	*1.83	*2.66	*0.29	*0.60	2.01	0.84	1.82	1.55	*0.05	*0.29	*0.84	13.27
Q	0	0	0	0	0	T	.02	.25	.02	0	0	0	.29
1939 P	1.57	.68	.93	1.19	.21	0	2.34	1.20	1.66	.81	.92	.45	11.96
Q	0	0	0	0	0	0	.07	0	0	0	0	0	.07
1940 P	1.09	1.22	.34	.73	1.26	.86	1.92	2.15	3.47	1.06	1.12	2.45	17.67
Q	0	0	0	0	0	0	T	.01	.02	0	0	0	.03
1941 P	1.74	1.02	2.11	2.71	3.48	.87	2.54	3.01	3.62	3.65	.53	1.22	26.50
Q	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1942 P	*.03	*1.01	*.38	1.85	.03	.08	.96	.99	1.14	1.54	*.05	*1.62	9.68
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
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**Av. P	.80	1.19	1.08	1.02	.53	.74	1.51	1.54	1.95	.86	.59	1.34	13.15
**Av. Q	0	0	0	0	0	0	.02	.07	.01	0	0	0	.10
Normal P	.70	.60	.59	.50	.81	.50	1.41	1.60	1.44	.89	.55	.63	10.22

Notes: \*Based on gages Nos. 3 & 4 (elev. 6900 and 8014 ft. resp.) located outside of watershed. Mos. of Jan., Feb., Mar., Nov., and Dec. include snow and snow melt. Runoff for yrs. 1939 and 1940 includes considerable amount of silt. \*\*Does not include amounts for 1941. Normal P based on 27-yr. record (1924-1950) at Tohatchi, N. M. (elev. 6800 ft.) Quality of records: P - poor; Q - poor.

12-57  
MEXICAN SPRINGS, NEW MEXICO Watershed W-8  
LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 20,910 ac. (32.7 sq. mi.) SHAPE: Fan, about 7.65 mi. wide by 8.69 mi. long.

SLOPES: 34% is in 0-10% class; 43% in 10-30%; 17% in 30-60%; 5% in 60-100%; 1% in over 100%.

Aspect S-SE.

SOILS: Rough broken sandstone land - 37%. Eroded rough broken shale-sandstone complex - 30%.

Miscellaneous sandstone outcrop and sandy sandstone land - 11%. Alluvial soil, calcareous sandy clay loam surface, moderately permeable subsoil - 7%. Miscellaneous alluvial and colluvial soils - 4%. Shallow soil, non-calcareous loam, moderately permeable subsoil residual from sandstone - 6%.

EROSION: 1 - 9%; 2 - 60%; 3 - 31%.

LAND CAPABILITY: IV - 2%; VI - 19%; VII - 44%;

VIII - 35%.

SURFACE DRAINAGE: Good, length of principal waterway - 12.35 mi.

Progreso loam - moderately deep soil with medium textured surface soil and moderately permeable subsoil, residual from sandstone and loess - 2%. Miscellaneous shallow and moderately deep soils residual from sandstone - 3%.

CHARACTER OF FLOW: Ephemeral, continuous.

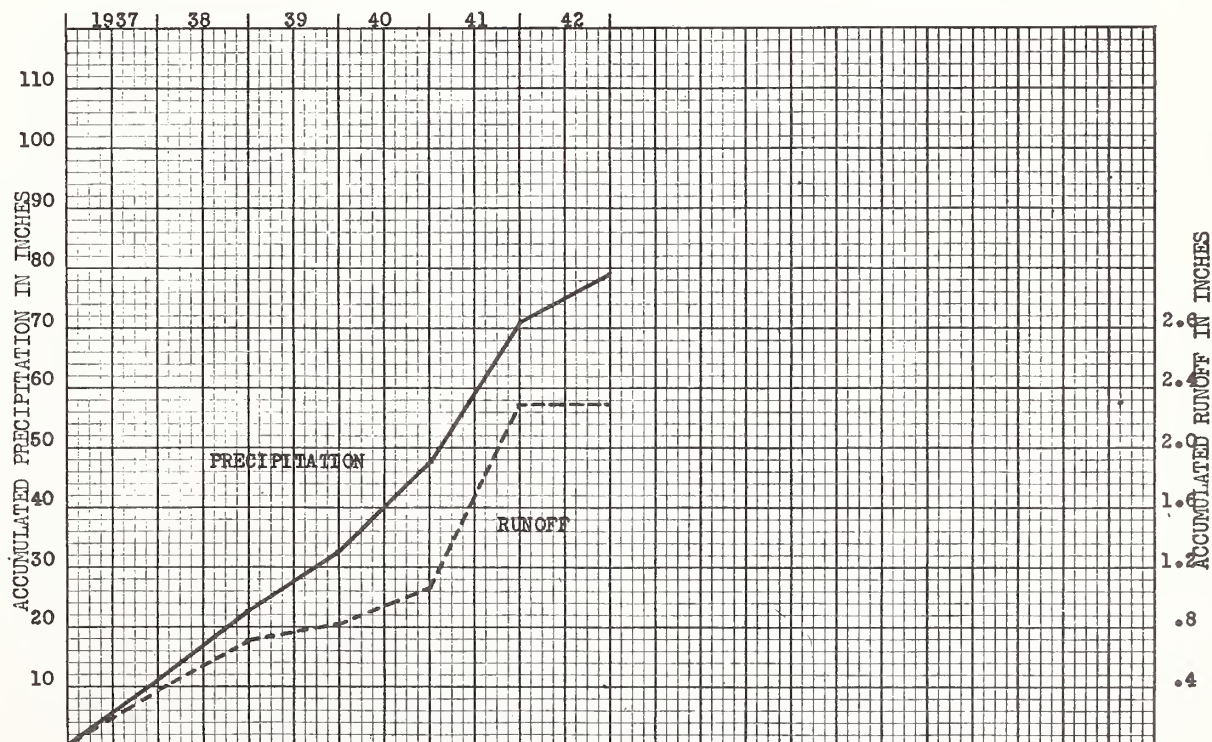
INSTRUMENTATION: Runoff - artificial control, rating established by current meter; continuous waterstage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: This watershed is made up of watersheds W-1, W-2, W-3, W-6 and W-7.

Vegetation is a composite of these five sub watersheds.

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-8**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P	*0.78	*1.56	*1.00	*0.28	*1.28	0	1.45	1.66	1.50	*0.32	*0.14	*0.86	10.73
Q	0	0	0	0	.02	0	.13	.08	.13	0	0	0	.36
1938 P	*.48	*1.55	*2.24	*.24	*.46	1.98	.62	1.45	1.40	*.06	*.23	*.75	11.46
Q	0	0	0	0	0	.02	.07	.20	.06	0	0	0	.34
1939 P	1.23	.44	.87	1.07	.20	0	1.84	1.23	1.46	.64	.70	.41	10.09
Q	0	0	0	0	0	0	.04	.06	.01	0	0	0	.11
1940 P	.84	.98	.31	.53	1.23	.85	1.66	1.84	3.22	.94	.99	2.19	15.58
Q	0	0	0	0	.01	.01	.03	.03	.15	0	0	0	.23
1941 P	1.30	.84	2.01	2.12	3.11	.74	1.80	2.77	3.31	3.58	.40	.95	22.93
Q	0	T	T	.08	.16	T	.25	.30	.09	.39	0	0	1.27
1942 P	*.02	*.98	*.33	1.36	.02	.04	.88	.85	1.15	1.38	*.04	*1.32	8.37
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
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Av. P	.77	1.06	1.13	.93	1.05	.60	1.37	1.62	2.01	1.15	.42	1.08	13.19
Av. Q	0	0	0	.01	.03	.01	.09	.11	.08	.06	0	0	.39
Normal P	.70	.60	.59	.50	.81	.50	1.41	1.60	1.44	.89	.55	.63	10.22

**Notes:** \*Based on gages Nos. 2, 3, and 4 (elev. 6437, 6900, and 8014 ft. resp.) Mos. of Jan., Feb., Mar., Nov., and Dec. include snow and snow melt. Runoff for years 1939 and 1940 includes considerable amount of s.l.c. Normal P based on 27-yr. record (1924-1950) at Tohatchi, N. Mex. (elev. 6800 ft.).  
 Quality of records: P - poor; Q - poor.



12-57  
LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 17,220 ac. (26.9 sq. mi.) SHAPE: Fan, about 6.25 mi. wide by 7.77 mi. long.

SLOPES: 32% is in 0-10% class; 36% in 10-30%; 27% in 30-60%; 5% in 60-100%; 1% in over 100%.  
Aspect E-SE.

SOILS: Rough broken sandstone land - 63%. Rough broken eroded shale-sandstone complex - 14%. Sandstone outcrop - 5%. Shallow soil, non-calcareous loam surface, moderately permeable subsoil residual from sandstone - 2%. Shallow soil, calcareous loam surface, moderately permeable subsoil residual from sandstone - 2%. Colluvial soil, non-calcareous sandy clay loam, slowly permeable prominent B<sub>2</sub>, gullied - 1%. Alluvial soils, calcareous sandy clay loam surface, moderately permeable subsoil - 9%. Miscellaneous alluvial soils - 3%. Deep soil, non-calcareous loam surface, buried B<sub>2</sub>, slowly permeable subsoil underlain by sandstone - 1%.

LAND CAPABILITY: VI - 15%; VII - 65%; VIII - 20%.

SURFACE DRAINAGE: Good, length of principal waterway - 8.90 mi.

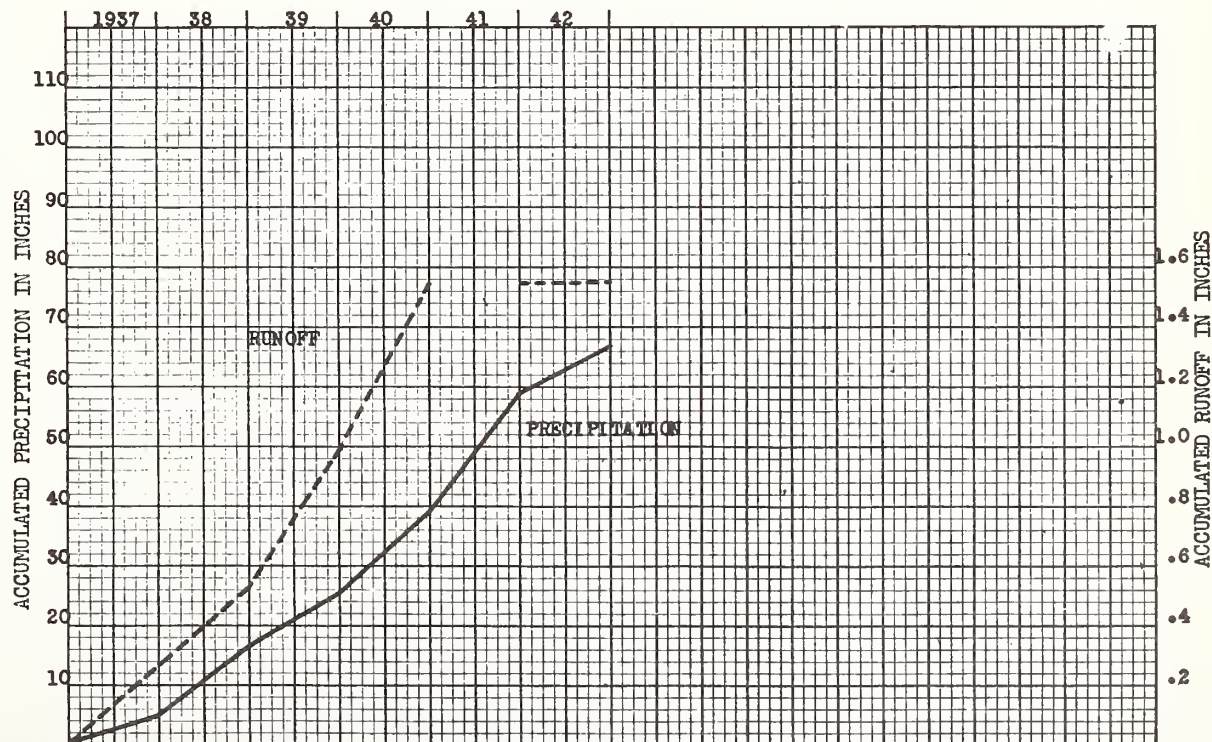
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - artificial control, rating established by current meter; continuous waterstage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: 80% of area is bare. Vegetation on upper half consists of sparse pinon and juniper with very sparse understory of galleta and blue grama. Lower half is sparse grassland (2 to 4% cover composed of blue grama and galleta).

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-10**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P	NR	NR	NR	NR	NR	0	0.49	1.36	1.60	*0.32	*0.11	*0.86	4.77
Q	NR	NR	NR	NR	NR	0	.04	.11	.12	0	0	0	.27
1938 P	*.48	*1.55	*2.24	*.24	*.46	1.71	1.07	1.00	1.79	*.06	*.23	*.75	11.58
Q	0	0	0	0	0	.01	.01	.07	.17	0	0	0	.26
1939 P	*.94	*.27	*.72	1.29	.22	0	1.29	1.65	1.23	.65	*.42	.30	8.98
Q	0	0	0	.01	0	0	.11	.31	.02	0	0	0	.45
1940 P	*.51	*.67	*.19	.57	.90	.88	1.20	1.69	3.80	.94	*.72	1.81	13.88
Q	0	0	0	0	T	.02	.04	.08	.43	0	0	0	.57
1941 P	*.79	*.71	*2.01	1.96	2.41	.59	1.58	2.21	3.45	3.44	*.32	*.65	20.12
Q	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1942 P	*.02	*.98	*.33	1.24	.01	.13	1.00	.77	.81	1.36	*.04	*1.32	8.01
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
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** Av. P	.49	.87	.87	.83	.40	.68	1.14	1.28	1.91	.75	.35	1.04	10.61
** Av. Q	0	0	0	0	0	.01	.04	.11	.16	0	0	0	.32
Normal P	.70	.60	.59	.50	.81	.50	1.41	1.60	1.44	.89	.55	.63	10.22

Notes: \*Based on gages Nos. 2, 3, & 4 (elev. 6437, 6900, and 8014 ft. resp.) located outside of wsd. Mos. of Jan., Feb., Mar., Nov., and Dec. include snow and snow melt. Runoff for yrs. 1939 and 1940 includes considerable amount of silt. \*\*Does not include amounts for yrs. 1937 and 1941. Normal P based on 27-yr. record (1924-1950) at Tohatchi, N. M. (elev. 6800 ft.) Quality of records: P - poor; Q - poor.

12-57  
MEXICAN SPRINGS, NEW MEXICO Watershed W-11  
LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 46,080 ac. (72 sq. mi.)      SHAPE: Fan, about 13.30 mi. wide by 10.95 mi. long.

SLOPES: 40% is in 0-10% class; 36% in 10-30%; 19% in 30-60%; 4% in 60-100%; 1% in over 100%.

Aspect E-SE.

SOILS: Rough broken sandstone land - 47%. Eroded rough broken shale-sandstone complex - 22%.

Miscellaneous sandstone outcrop and sandy sandstone land - 8%. Alluvial soil, calcareous sandy clay loam surface, slowly permeable subsoil - 8%. Miscellaneous alluvial and colluvial soils - 7%.

Shallow soils, loam surface, moderately permeable subsoil, residual from sandstone - 5%. Progresso loam - moderately deep soil with medium textured surface

EROSION: 1 - 7%; 2 - 68%; 3 - 25%.

soil and moderately permeable subsoil, residual from sandstone and loess - 2%.

LAND CAPABILITY: IV - 1%; VI - 20%; VII - 52%; VIII - 27%.

SURFACE DRAINAGE: Good, length of principal waterway - 17.33 mi.

Other moderately deep soils - 1%.

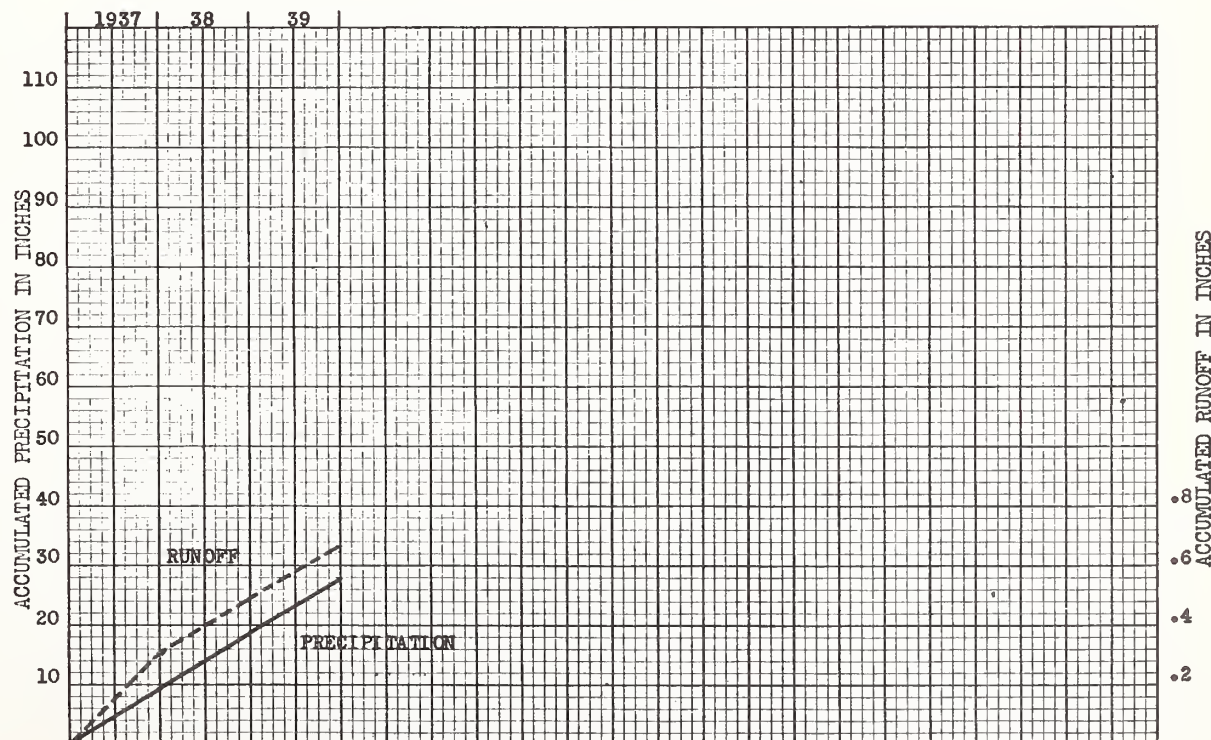
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - artificial control, rating established by current meter; continuous waterstage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: Includes watersheds W-8 and W-10 plus 2 sq. mi. sparse pinon and juniper and 2.5 sq. mi. grassland, 2 to 5% cover consisting of blue grama, galleta, western wheatgrass and red three-awn.

GENERALLY REPRESENTS: Navajo Plateau.

#### ACCUMULATED PRECIPITATION AND RUNOFF





MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-11

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P	*0.70	*1.40	*0.92	*0.26	0.38	0	0.95	1.48	1.47	*0.27	*0.14	*0.84	8.81
Q	0	.01	0	0	.01	0	.05	.11	.12	0	0	0	.30
1938 P	*.35	*1.00	*1.49	*.15	*.29	1.90	.80	1.17	1.54	*.31	*.21	*.63	9.84
Q	0	0	0	0	0	.01	.02	.08	.07	0	0	0	.18
1939 P	1.07	.35	.79	1.17	.21	0	1.50	1.32	1.39	.64	.55	.35	9.34
Q	0	0	0	0	0	0	.04	.10	.05	0	0	0	.19
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Av. P	.70	.92	1.07	.53	.29	.63	1.08	1.32	1.47	.41	.30	.61	9.33
Av. Q	0	0	0	0	0	0	.04	.10	.08	0	0	0	.22
Normal P	.70	.60	.59	.50	.81	.50	1.41	1.60	1.44	.89	.55	.63	10.22

Notes: \*Based on gages Nos. 1, 2, 3, and 4 (elev. 6220, 6437, 6900, and 8014 ft., resp.). Gage No. 1 located outside of the watershed. Station discontinued Oct. 1940. Months of Jan., Feb., March, Nov., and December include snow and snow melt. Normal P based on 27-yr. record (1924-1950) at Tohatchi, N. Mex. (elev. 6800 ft.). Quality of records: P - poor; Q - poor.

12-57

MEXICAN SPRINGS, NEW MEXICO Watershed W-12

LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 2,550 ao. (4.0 sq. mi.) SHAPE: Roughly rectangular, about 1.61 mi. wide by 4.20 mi. long.

SLOPES: 48% is in 0-10% class; 46% in 10-30%; 6% in 30-60%; T in 60-100%. Aspect SE.

SOILS: Eroded rough broken shale-sandstone complex - 87%. Progresso loam - moderately deep soil with medium textured surface soil and moderately permeable subsoil, residual from sandstone and loess - 3%. Shallow calcareous loam surface, moderately permeable subsoil residual from sandstone - 3%. Rough broken sandstone land - 1%. Alluvial soil, calcareous sandy clay loam surface, slowly permeable subsoil - 4%. Alluvial soil, oalcareous sandy clay loam surface, moderately permeable subsoil - 2%.

LAND CAPABILITY: VI - 9%; VII - 4%; VIII - 87%.

SURFACE DRAINAGE: Good, length of principal waterway - 4.94 mi.

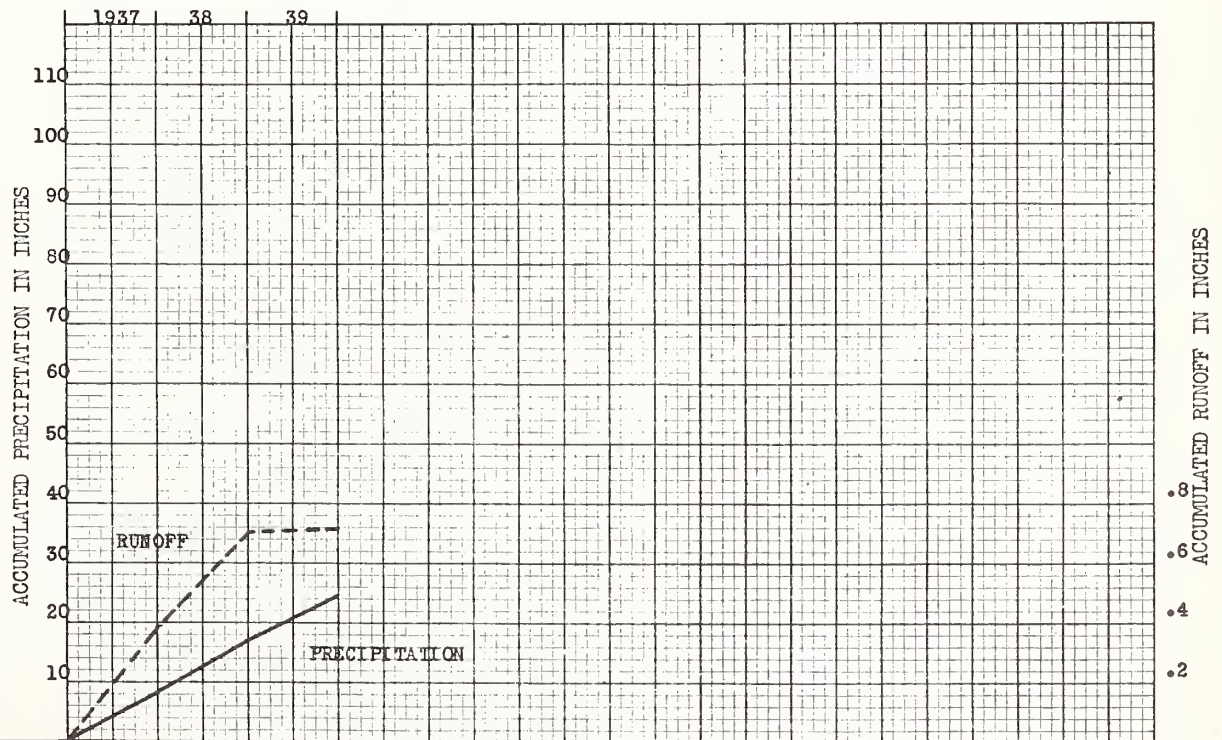
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - artificial control, rating established by current meter; continuous waterstage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: 80% of area is bare. Vegetation on upper half consists of sparse pinon and juniper; on lower half very sparse pinon and juniper with understory of grasses (blue grama, gallenta, western wheatgrass and red three-awn).

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-12

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P Q	*0.45 0	*1.17 0	*0.78 0	*0.21 0	*1.41 .09	0 0	1.21 .09	0.67 .06	1.16 .14	*0.27 0	*0.14 0	*0.65 0	8.12 .38
1938 P Q	*.38 0	*.90 0	*1.34 0	*.14 0	*.22 0	2.27 .13	.86 .08	.88 .08	1.15 .04	*.08 0	*.20 0	*.63 0	9.05 .33
1939 P Q	*.92 0	*.28 0	*.81 0	.85 0	.22 0	0 0	.66 0	.75 T	1.23 .02	.37 0	*.50 0	*.35 r	6.94 .02
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Av. P Av. Q	.58 0	.78 0	.98 0	.40 0	.62 .03	.76 .04	.91 .06	.77 .04	1.18 .07	.24 0	.28 0	.54 0	8.04 .24
Normal P	.70	.60	.59	.50	.81	.50	1.41	1.60	1.44	.89	.55	.63	10.22

Notes: \*Based on gages Nos. 2 and 3 (elev. 6437 and 6900 ft., resp.) located outside of watershed. Station discontinued Oct. 1940. Months of Jan., Feb., March, Nov., and Dec. include snow and snow melt. Normal P based on 27-yr. record (1924-1950) at Tohatchi, N. Mex. (elev. 6800 ft.). Quality of records: P - poor; Q - poor.



MEXICAN SPRINGS, NEW MEXICO Watershed W-13

12-57  
LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 3,360 ac. (5 sq. mi.)      SHAPE: Long rectangular, about 1.38 mi. wide by 5.49 mi. long.

SLOPES: 48% is in 0-10% class; 27% in 10-30%; 23% in 30-60%; 2% in 60-100%. Aspect E-NE.

SOILS: Rough broken sandstone land - 75%. Eroded rough broken shale-sandstone complex - 10%.  
Shallow calcareous loam surface, moderately permeable subsoil, residual from sandstone - 3%.  
Alluvial soil, calcareous sandy clay loam surface, moderately permeable subsoil - 7%. Alluvial  
soil, calcareous sandy clay loam surface, slowly permeable subsoil - 5%.  
EROSION: 1 - 5%; 2 - 85%; 3 - 10%.

LAND CAPABILITY: VI - 12%; VII - 78%; VIII - 10%.

SURFACE DRAINAGE: Good, length of principal waterway - 7.08 mi.

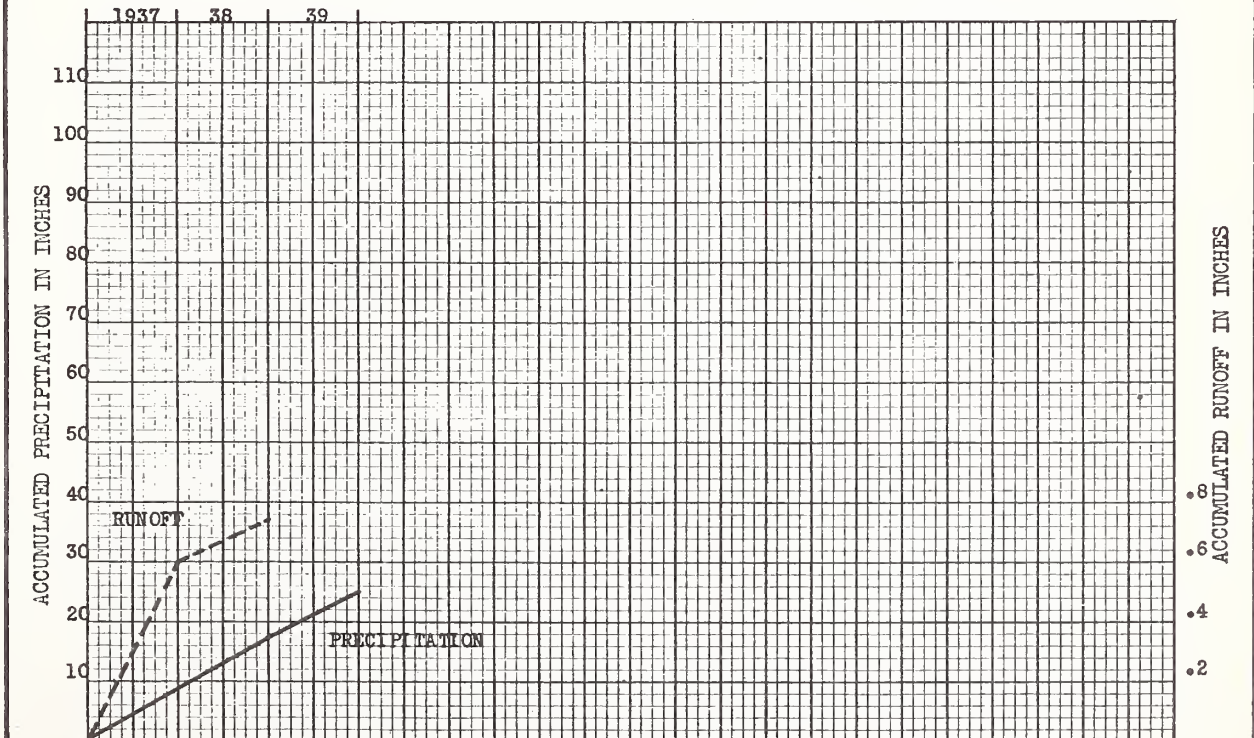
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - artificial control, rating curve established by current meter; continuous  
waterstage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: 80% of area is bare. Vegetation consists of pinon and juniper with sparse  
understory of grasses on lower half of area (blue grama, galleta, western wheatgrass and red  
three-awn).

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-13

[illegible]

Notes: \*Based on gage No. 3 (elev. 6900 ft.) located outside of watershed. \*\*Does not include amounts for year 1939. Station discontinued Oct. 1940. Months of Jan., Feb., March, Nov., and Dec. include snow and snow melt. Normal P based on 27-yr. record (1924-1950) at Tohatchi, N. Mex. (elev. 6800 ft.). Quality of records: P - poor; Q - poor.



MEXICAN SPRINGS, NEW MEXICO Watershed W-14

12-57

LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 3,560 ac. (5.56 sq. mi.)

SHAPE: Oval, about 2.23 mi. wide by 5.45 mi. long.

SLOPES: 20% is in 0-10% class; 35% in 10-30%; 30% in 30-60%; 10% in 60-100%; 5% in over 100%.

Aspect S-SE.

SOILS: Shale outcrop - 40%. Eroded rough broken shale-sandstone complex - 21%. Rough broken sandstone land - 11%. Moderately deep calcareous loam surface, moderately permeable subsoil, residual from sandstone 6%. Eroded rough broken sandy sandstone land - 4%. Alluvial soil, calcareous sandy clay loam surface, moderately permeable subsoil - 15%. Alluvial soil, calcareous sandy clay loam surface, slowly permeable subsoil - 3%.

EROSION: 1 - 9%; 2 - 26%; 3 - 65%.

LAND CAPABILITY: VI - 24%; VII - 11%; VIII - 65%.

SURFACE DRAINAGE: Good, length of principal drainage way - 6.20 mi.

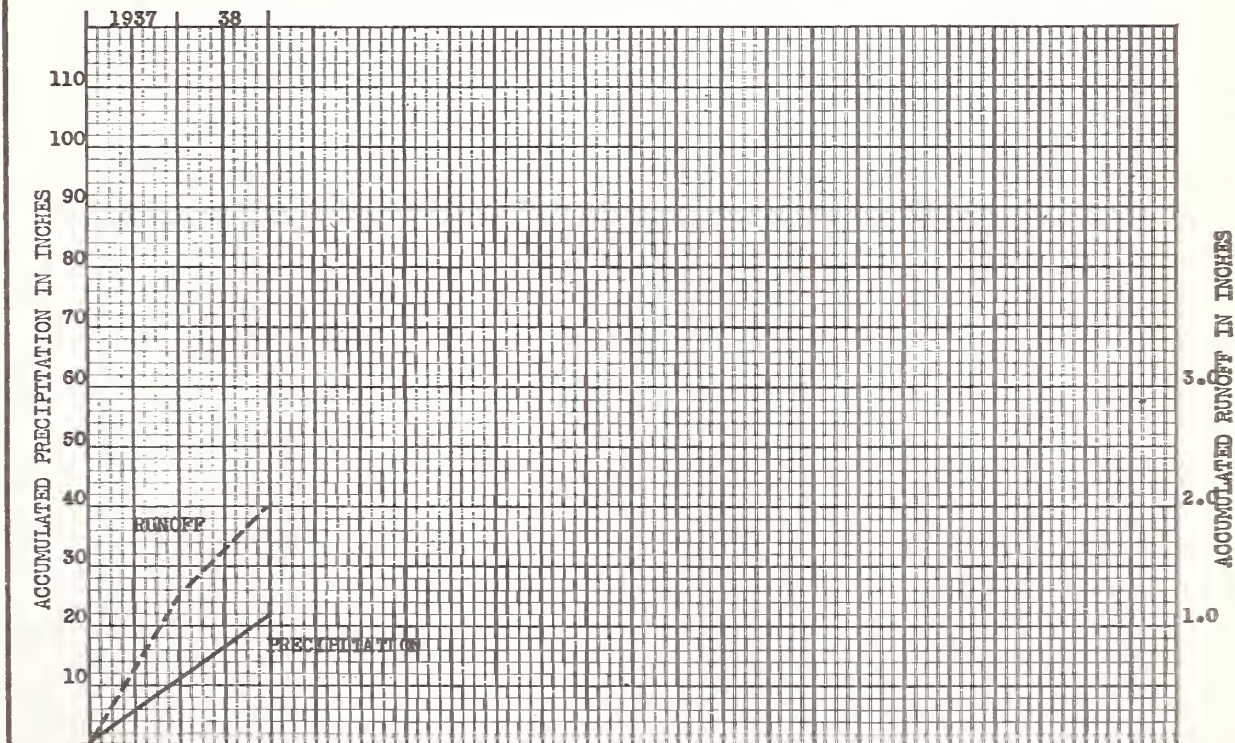
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - artificial control, rating established by current meter; continuous waterstage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: 95 to 98% of area is bare. Vegetation consists of piñon and juniper.

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-14

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937	P	*0.78	*1.56	*1.00	*0.28	*1.28	*0.97	*1.30	0.79	2.03	*0.32	*0.14	*0.86	11.31
	Q	0	0	0	0	.14	.01	.24	.12	.77	0	0	0	1.28
1938	P	*.48	*1.55	*2.24	*.24	*.46	2.04	.48	.93	1.29	*.06	*.23	*.75	10.75
	Q	0	0	0	0	0	.37	.07	.17	.16	0	0	0	.77
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MEXICAN SPRINGS, NEW MEXICO Watershed W-15

12-57  
LOCATION: McKinley Co., N.M.; 23 mi. NW of Gallup; Chaco River, San Juan River, Colorado River Basin.

AREA: 4,740 ao. (7.4 sq. mi.)      SHAPE: Club, about 1.95 mi. wide by 7.80 mi. long.

SLOPES: 23% is in 0-10% class; 55% in 10-30%; 20% in 30-60%; 2% in 60-100%; T in over 100%.

Aspect E-NE.

SOILS: Rough broken sandstone land - 68%. Eroded rough broken shale-sandstone complex - 11%. Rough broken sodium affected shale-sandstone complex - 8%. Shallow sodium affected clay loam, residual from shale - 3%. Shallow oolcareous loam surface, moderately permeable subsoil, residual from sandstone - 3%. Alluvial soil, sodium affected, oolcareous loam surface, slowly permeable subsoil

EROSION: 1 - 3%; 2 - 71%; 3 - 22%; 4 - 4%.      - 3%. Same alluvial soil but gullied - 4%.

LAND CAPABILITY: VII - 74%; VIII - 26%.

SURFACE DRAINAGE: Good, length of principal waterway - 10.43 mi.

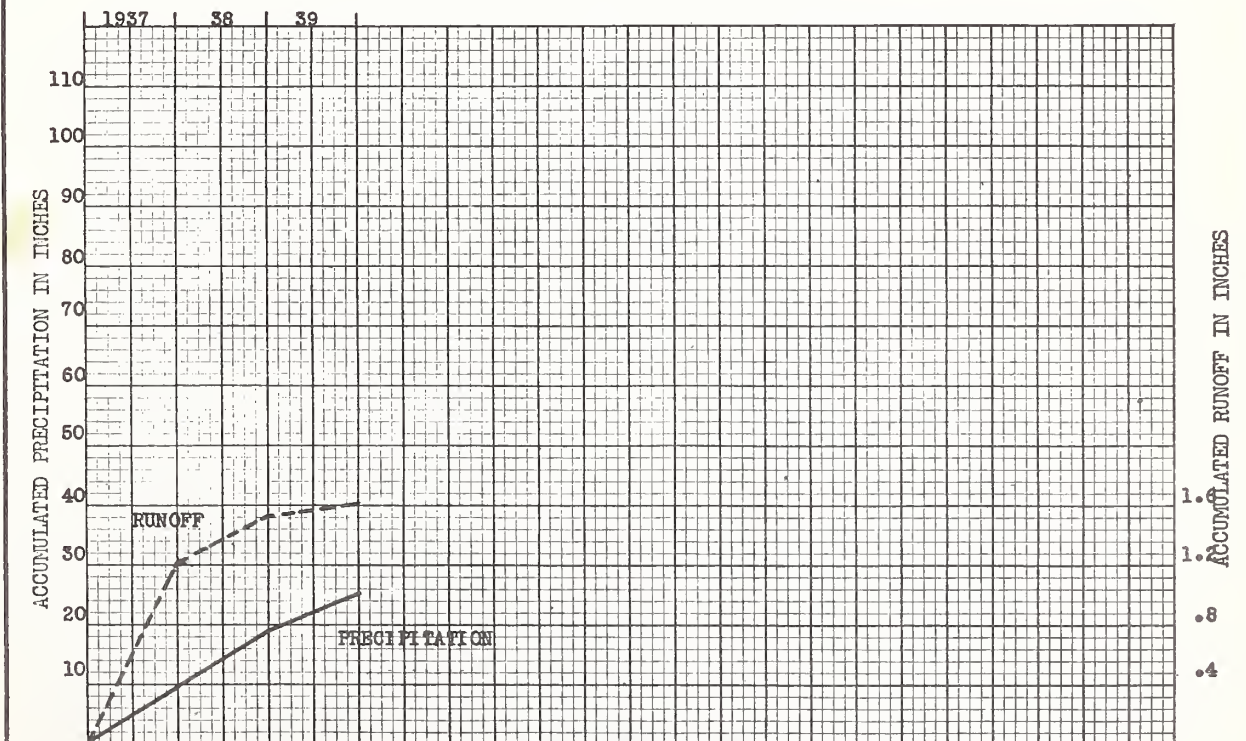
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - artificial control, rating established by current meter; continuous waterstage recorder. Precipitation - recording and standard gages.

WATERSHED CONDITIONS: 80% of area is bare. Vegetation consists of pinon and juniper with sparse understory of grasses on lower half (blue grama, galleta, western wheat grass and red three-awn).

GENERALLY REPRESENTS: Navajo Plateau.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Mexican Springs, N. Mex., Watershed W-15

[illegible]

Notes: \* Based on gages No. 1, 2, and 3 (elev. 6220, 6437, and 6900, resp.) located outside of the watershed. Months of Jan., Feb., March, Nov., and Dec. include snow and snow melt. Normal P based on 27-yr. record (1924-1950) at Tohatchi, N. Mex. (elev. 6800 ft.). Quality of records: P - poor; Q - Poor.



3-56

SANTA FE, NEW MEXICO

Watershed W-I

LOCATION: Santa Fe Co., N. Mex.; 3 mi. NW of Santa Fe; Middle Rio Grande Basin.

AREA: 141 ac.

SHAPE: Teardrop, 2100 ft. wide by 4400 ft. long.

SLOPES: 19% is in 0-3% class; 62% in 3-10%; 19% in 10-35%. Aspect S-SE.

SOILS: Parent material - basalt. Tentative series for entire watershed is Paiso. 8% of area has weak very fine granular loam surface soils with weak medium prismatic subsoil; 2% of area has silt loam surface soils with weak medium prismatic subsoil; 64% of area has moderately fine granular silt loam surface soils with moderately medium angular blocky subsoil; 26% of area has gravelly silt loam surface soils.

LAND CAPABILITY: VI - 98%; VIII - 2%.

SURFACE DRAINAGE: Good; principal waterway - 3200 ft.; drainage density - 89 ft. per ac.

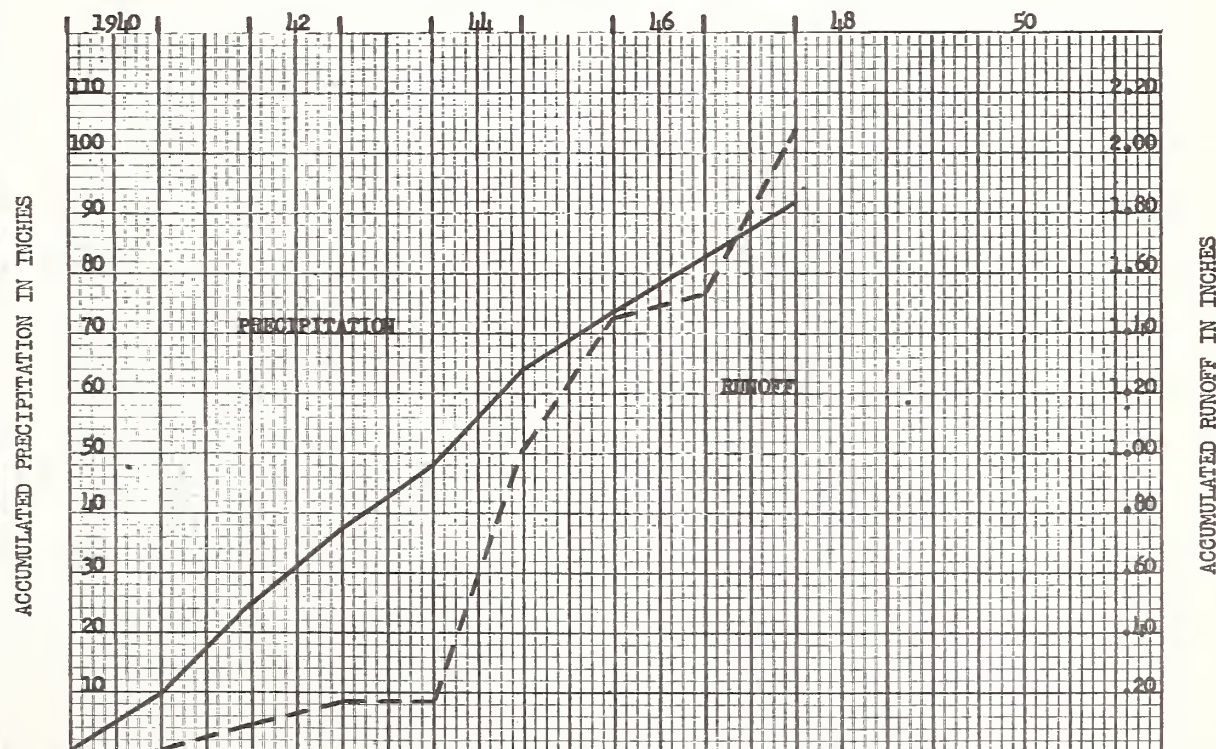
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16" broadcrested concrete weir with 3:1 side slopes, 6-hr. chart; precipitation - 2 recording gages, one 12-hr. and one 192-hr. chart.

WATERSHED CONDITIONS: 70% of area is bare. Remaining 30% consists of short grasses (blue, black, and side-oats grama, galleta, ring grass, red three-awn, sand dropseed), shrubs (winterfat, rabbit-brush, snakeweed, soapweed), and trees (pinon and juniper).

GENERALLY REPRESENTS: Rio Grande Valley.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and New Mexico Agricultural Experiment Station.

MONTHLY PRECIPITATION AND RUNOFF (Inches) Santa Fe, New Mexico, Watershed W-I

Month Year		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939	P Q	NR NR	NR NR	NR NR	NR NR	NR NR	NR NR	2.09 0	1.61 .05	1.30 0	1.38 T	0.50 0	NR NR	
1940	P Q	.47 0	.29 0	.90 0	.26 0	1.35 0	.50 0	.36 0	.92 T	1.26 0	.34 0	1.43 0	1.77 0	9.85 0
1941	P Q	.74 .03	.69 0	.88 0	.95 0	2.09 0	1.03 .01	2.16 .02	.98 T	2.37 .01	2.57 .02	.54 0	.23 0	15.23 .09
1942	P Q	.02 0	.42 0	.58 0	3.54 T	.03 0	.49 0	.85 0	2.71 .02	2.18 .04	.64 0	0 0	1.18 0	12.64 .06
1943	P Q	.45 0	.17 0	.91 0	.32 0	.74 0	1.08 0	1.97 0	1.72 0	.71 0	.82 0	.59 0	1.13 0	10.61 0
1944	P Q	.58 0	.40 0	.47 0	.82 0	.76 0	.22 0	3.14 .04	3.56 .58	.96 0	3.28 .25	.78 0	.85 0	15.82 .87
1945	P Q	.66 0	.10 .08	.78 0	.80 0	.07 0	.61 0	3.09 .36	1.18 T	.91 0	.86 0	0 0	.65 0	9.71 .44
1946	P Q	.17 0	.44 0	.74 0	.23 0	.23 0	.22 0	1.94 .05	2.27 .01	.62 .01	1.23 0	.47 0	.02 0	8.58 .07
1947	P Q	.10 0	.29 0	.35 0	.15 0	2.00 .01	.36 0	.55 0	2.78 .39	1.11 .13	.64 .02	.52 0	.75 0	9.60 .55
1948	P Q	.04 0	1.44 0	.44 0	.30 0	.77 0	2.98 .03	.88 0	2.18 .20	NR 0	NR 0	NR 0	NR 0	
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** Av. P ** Av. Q		.40 T	.35 .01	.70 0	.88 T	.91 T	.56 T	1.76 .06	2.02 .13	1.27 .02	1.30 .04	.54 0	.82 0	11.51 .26
Normal	P	.60	.80	.74	.90	1.19	1.12	2.44	2.41	1.63	1.06	.70	.72	14.31

Notes: \*\* Does not include part year amounts for 1939 and 1948. Normal P based on 100 yr. record (1850-1950) at State Highway Dept., Santa Fe, N. Mex. Quality of records: P - good; Q - good. Months of Nov.-March include snow and snow melt. NR denotes no record.



LOCATION: Santa Fe Co., N. M., 35 mi. NW of Santa Fe; Middle Rio Grande Basin.

AREA: 790 ac. (1.23 sq. mi.)

SHAPE: Club, about 3500 ft. wide by 14,350 ft. long.

SLOPES: 29% is in 0-3% class; 50% in 3-10%; 21% in 10-35%. Aspect N-NE.

SOILS: Parent material - basalt. 59% of area - mapping unit 322lh(uncorrelated series), weak very fine granular silt loam surface soils with weak medium angular blocky subsoil; 11% of area - tentative series is Paiso, weak very fine granular silt loam surface soils with moderately medium angular blocky subsoil; 11% of area - mapping unit 3221T(uncorrelated series), weak very fine granular silt loam surface soils with moderately medium angular blocky subsoil; 19% of area - tentative series Prieto, weak very fine granular stony silt loam surface soils with massive subsoil.

EROSION: 2-81%; 1-19%

LAND CAPABILITY: VI-81%; VII-19%

SURFACE DRAINAGE: Good; principal waterway - 13800 ft.; drainage density - 42 ft. per ac.

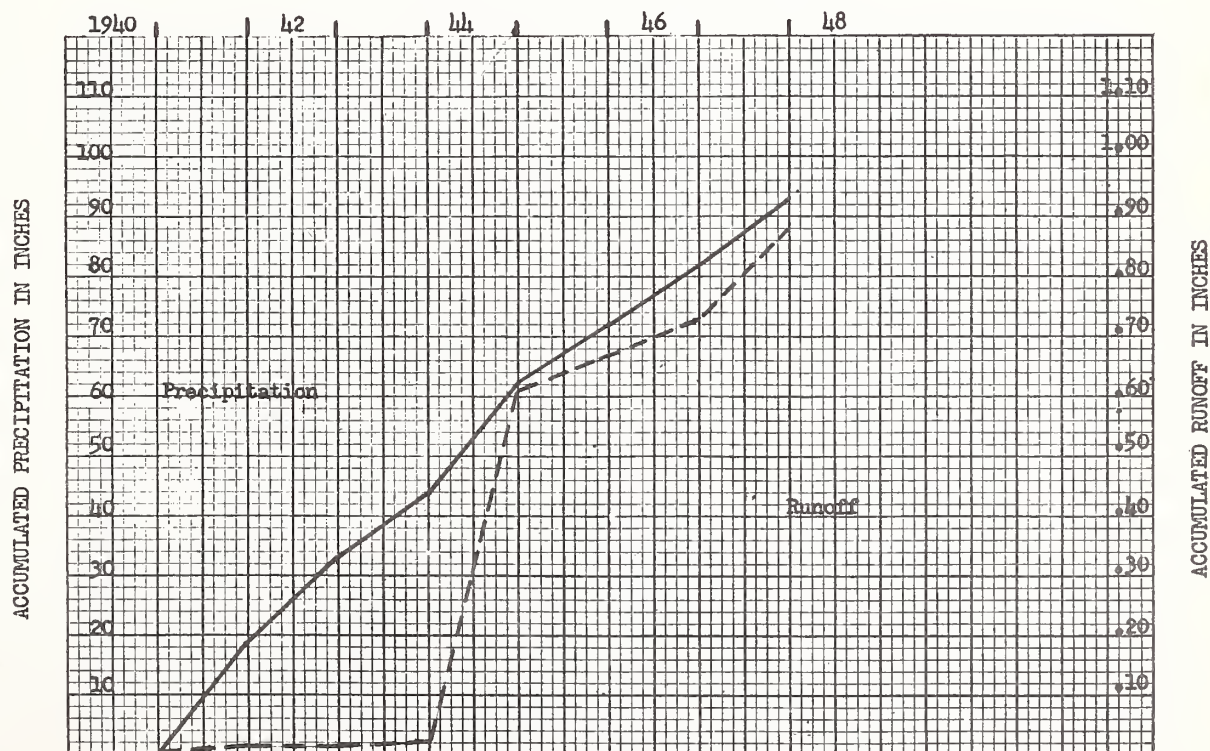
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16" broadcrested concrete weir with 3:1 side slopes, 6 hr. chart; precipitation - 3 recording gages, two 12 hr. charts and one 192 hr. chart.

WATERSHED CONDITIONS: 68% of area is bare. Remaining 32% consists of short grasses (blue grama, galleta, ringgrass, red 3-awn, sand dropseed, side-oats grama), shrubs (rabbitbrush, snakeweed, soapweed, cactus, sand sage), and trees (pinon and juniper).

GENERALLY REPRESENTS: Rio Grande Valley.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research project of USDA and New Mexico Agricultural Experiment Station



MONTHLY PRECIPITATION AND RUNOFF (Inches) Santa Fe, New Mexico, Watershed W-II

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	NR NR	2.31 0	1.20 0	1.27 0	1.51 0	0.52 0	NR NR	
1940 P Q	NR 0	NR 0	NR 0	NR 0	1.56 0	.12 0	.82 0	1.45 T	1.48 0	.33 0	1.45 0	2.14 0	
1941 P Q	.73 0	1.03 0	2.17 0	1.14 T	2.33 0	.65 0	1.78 0	1.85 T	3.60 .01	2.62 T	.70 0	.46 0	19.06 .01
1942 P Q	.03 0	.45 0	.74 0	3.95 T	.18 0	.66 0	.75 T	2.40 T	2.37 T	.89 0	.01 0	1.32 0	13.75 0
1943 P Q	.40 0	.15 0	1.01 0	.37 0	.79 0	.90 0	2.27 .01	1.43 T	.61 0	.94 0	.62 0	1.60 0	11.09 .01
1944 P Q	.81 0	.46 0	.48 0	.91 0	.76 0	.22 0	3.86 <u>.38</u>	4.32 .25	1.22 0	3.80 .06	.99 0	.85 0	18.68 .69
1945 P Q	.66 0	.09 .06	.93 0	1.20 0	.40 0	.36 0	2.28 0	1.68 T	.88 0	.77 0	0 0	.61 0	9.86 .06
1946 P Q	.21 0	.46 0	1.00 0	.18 0	.26 0	.19 0	2.15 T	2.98 .06	.42 0	1.43 T	.47 0	.12 0	9.87 .06
1947 P Q	.11 0	.32 0	.39 0	.12 0	1.83 T	.16 0	.77 T	3.14 .07	1.57 .08	.74 T	.66 0	1.22 0	11.03 .15
1948 P Q	.10 0	1.56 .06	.78 0	.29 0	.68 0	1.13 0	NR 0	NR T	NR T	NR T	NR 0	NR 0	
P Q													
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**Av. P **Av. Q	.42 0	.42 .01	.96 0	1.12 T	.94 T	.45 0	1.98 .06	2.54 .05	1.52 .01	1.60 .01	.49 0	.88 0	13.32 .14
Normal P	.60	.80	.74	.90	1.19	1.12	2.44	2.41	1.63	1.06	.70	.72	14.31

Notes: \*\* Does not include part year amounts for 1939, 1940, and 1948. Normal P based on 100 yr. record (1850-1950) at State Highway Dept., Santa Fe, N.Mex. Quality of records: P - good; Q - good. Months of Nov.-March include snow and snow melt. Station closed June 3, 1949. NR denotes no record.

3-56

Santa Fe, New Mexico Watershed W-IIILOCATION: Santa Fe Co., N. M.; 6 mi. S of Santa Fe; Middle Rio Grande Basin.AREA: 51.6 ac.SHAPE: Rectangular, 2000 ft. wide by 4600 ft. long.SLOPES: 6% is in 0-3% class; 43% in 3-10%; 51% in 10-35%. Aspect N-NE.

SOILS: Parent material - Santa Fe formation principally sandstone and conglomerate. 70% of area - mapping unit 033M3(uncorrelated series), single grain gravelly loam surface soils with weak coarse platy subsoil; 26% of area - tentative series is Cascajo, weak very fine granular loam surface soils with weak very fine granular subsoil; 4% of area - tentative series is River wash, single grain loamy sand surface soils with single grain subsoil.

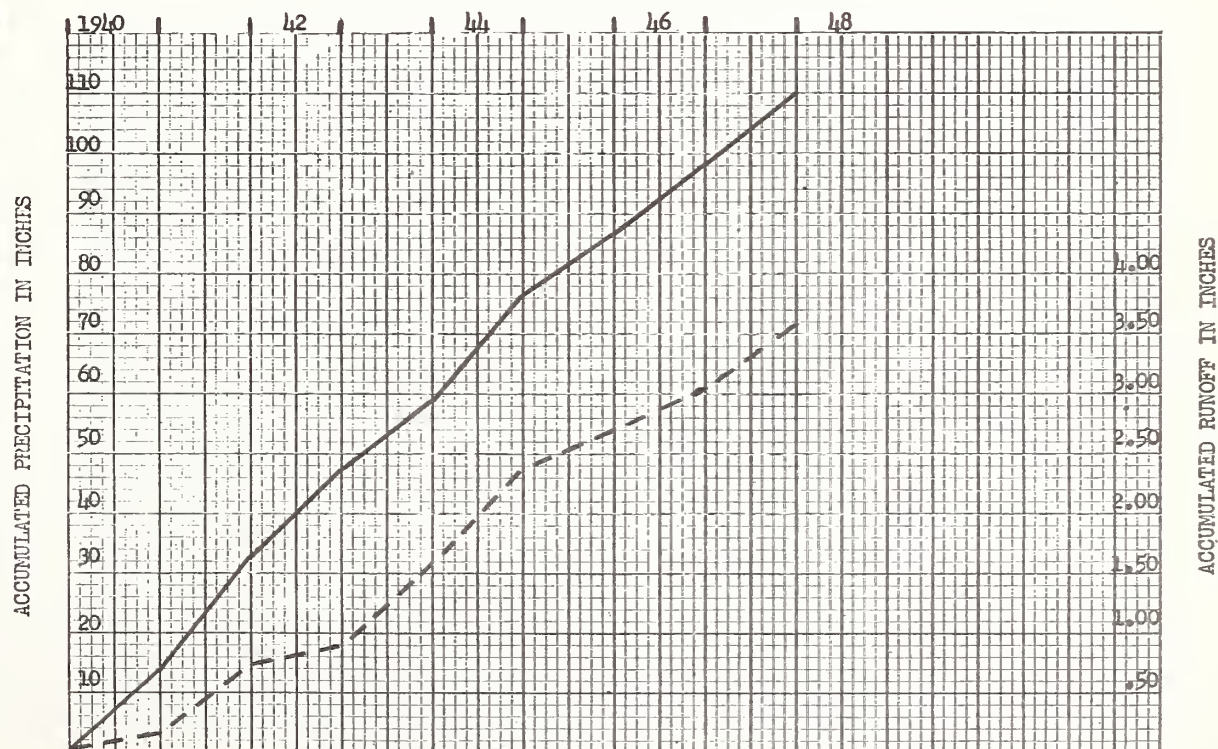
LAND CAPABILITY: VII-97%; VIII-3%.SURFACE DRAINAGE: Good; principal waterway - 2300 ft.; drainage density - 143 ft. per ac.CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 16" broadcrested concrete weir with 3:1 side slopes, 6 hr. chart; precipitation - 2 recording gages, one 12 hr. and one 192 hr. chart.

WATERSHED CONDITIONS: 63% of area is bare. Remaining 37% consists of short grasses (side-oats, blue and black grama, galleta, ricegrass, red 3-awn, prairie beardgrass, sand dropseed), shrubs (mountain mahogany, soapweed, rabbitbrush, snakeweed), and trees (pinon and juniper).

GENERALLY REPRESENTS: Rio Grande Valley.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)    Santa Fe, New Mexico, Watershed W-III**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q	NR NR	NR NR	NR NR	NR NR	NR NR	NR NR	2.12 NR	1.14 NR	2.17 NR	1.08 NR	0.72 NR	0.39 NR	
1940 P Q	0.63 0	0.98 0	1.39 0	0.55 0	1.38 0	0.32 0	0.82 T	1.48 T	2.40 *.14	0.69 .02	1.42 0	1.84 0	13.90 .16
1941 P Q	.91 T	.72 T	1.39 0	1.56 0	2.78 T	1.15 T	1.38 *.13	2.04 .23	3.63 *.18	3.08 .04	.47 0	.40 0	19.51 .58
1942 P Q	.10 0	.40 0	.90 0	4.35 0	.08 0	.73 0	.95 *.02	1.80 0	2.47 *.13	.98 0	0 0	1.25 0	14.01 .15
1943 P Q	.37 0	.60 0	.97 0	.05 0	.95 0	2.39 *.32	.79 0	2.39 *.37	.39 0	.73 T	.41 0	1.39 0	11.43 .69
1944 P Q	.82 0	.49 0	.88 0	1.46 0	.66 0	.99 0	4.18 .26	2.02 .06	1.29 .20	2.51 .24	1.26 .05	1.16 0	17.72 .81
1945 P Q	.69 0	.52 .14	.94 0	1.06 0	.42 0	.60 0	.89 0	2.62 *.17	.84 0	.96 0	0 0	.74 0	10.28 .31
1946 P Q	.50 0	.69 0	1.59 0	.35 0	.35 0	0 0	2.17 0	2.95 *.13	1.36 *.21	1.24 0	.70 0	.14 0	12.04 .34
1947 P Q	.46 0	.43 0	.54 0	.16 0	2.41 0	.45 T	.90 .03	2.47 .33	.40 .04	.87 *.18	.74 0	1.55 0	11.38 .48
1948 P Q	.04 0	1.78 T	.45 0	.49 0	1.56 .14	2.26 *.12	1.20 0	NR T	NR 0	NR 0	NR 0	NR 0	
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**Av. P **Av. Q	.56 T	.60 .02	1.08 0	1.19 0	1.13 T	.83 .04	1.51 .05	2.22 .16	1.60 .11	1.38 .06	.62 .01	1.06 0	13.78 .45
Normal P	.60	.80	.74	.90	1.19	1.12	2.44	2.41	1.63	1.06	.70	.72	14.31

**Notes:** \* Figures based upon estimates with standard recession curve. \*\* Does not include part year amounts for 1939 and 1948. Normal P based on 100 yr. record (1850-1950) at State Highway Dept., Santa Fe, N. Mex. Quality of records; P - good; Q - poor. Months of Nov.-March include snow and snow melt. NR denotes no record.



5-57

PLACERVILLE, CALIF. Watershed W-1

LOCATION: El Dorado Co., Calif.; 2 mi. W. of Placerville; American River Basin.

AREA: 41 ac.

SHAPE: Roughly rectangular, about 850 ft. wide by 2,650 ft. long.

SLOPES: 31% is in 9-15% class; 69% in 16-31%. Aspect NW.

SOILS: Residual; topsoil - medium textured, fine granular structure, moderately shallow (8-14 in. deep); subsoil - sandy clay loam with moderately slow permeability; substratum - deeply weathered quartz porphyry bedrock; internal drainage - slow to medium. Diamond Springs loam - 97%; Diamond Springs very rocky - 3%.

EROSION: 1 - 2%; 2 - 94%; 3 - 4%.

LAND CAPABILITY: III - 28%; IV - 70%; VI - 2%.

SURFACE DRAINAGE: Good; principal waterway - 2,600 ft.; drainage system consists of one well defined channel.

CHARACTER OF FLOW: Ephemeral, continuous.

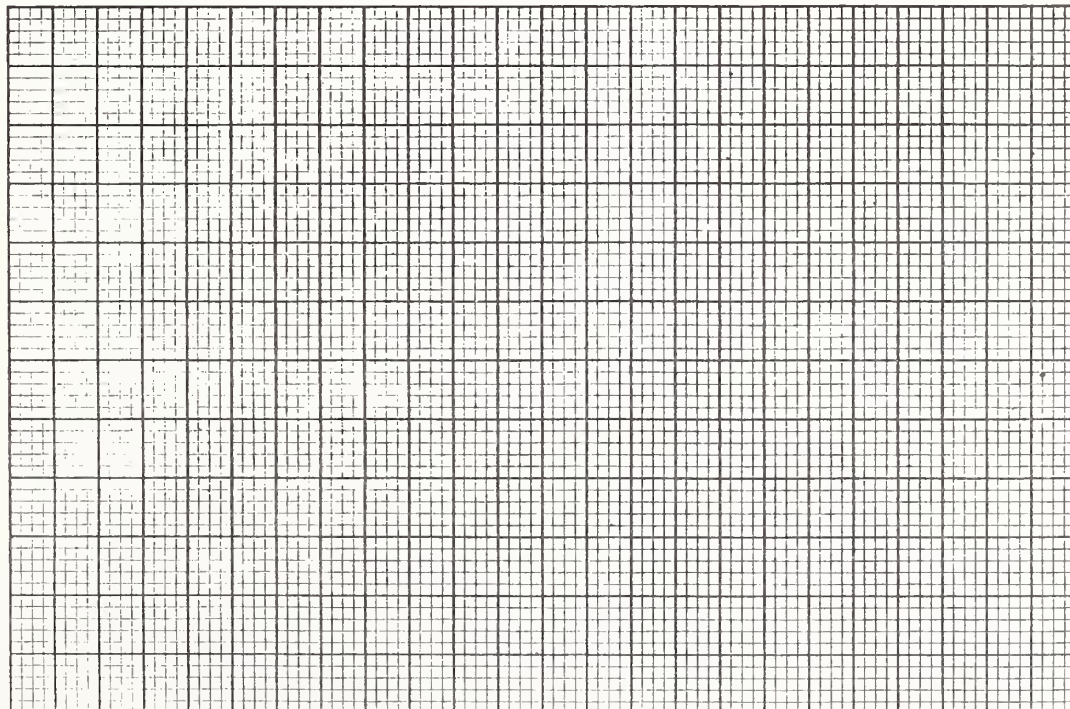
INSTRUMENTATION: Runoff - 3 ft. wooden Parshall flume; precipitation - one recording gage with standard Weather Bureau check gage.

WATERSHED CONDITIONS: 37 ac. straight row orchard with cover crop cultivated in the spring; 4 ac. cultivated pasture.

GENERALLY REPRESENTS: Orchard areas in the Sierra Nevada Foothills with similar soils and topography.

#### ACCUMULATED PRECIPITATION AND RUNOFF

ACCUMULATED PRECIPITATION IN INCHES



ACCUMULATED RUNOFF IN INCHES

Placerville, Calif. Watershed W-1

Notes: \*\*Does not include part-year amounts for 1935 and 1944. NR indicates no record for month. Quality of record: P - fair; Q - fair. Station not operated during months of June, July, Aug., and Sept. due to little or no rain. Normal P based on 74-yr. record (1875-1949) at Placerville, Calif.

5-57

SANTA PAULA, CALIF. Watershed W-1

LOCATION: Ventura Co., Calif.; 4 mi. N. and 2 mi. W. of Somis; minor tributaries to Pacific Ocean.

AREA: 413 ac.

SHAPE: Roughly rectangular, about 3,400 ft. wide by 5,700 ft. long.

SLOPES: 2% is in 16-30% class; 57% in 31-50% class; 41% in 51% class. Aspect S.

SOILS: Residual, developed on shales and sandstones; topsoil - fine textured, weak, coarse granular structure, moderately deep (6-15 in., av. 12 in.); subsoil - clay loams of moderately slow permeability; internal drainage - medium. Berryessa silty clay - 46%; Berryessa clay loam - 28%; San Andreas loam - 22%; rough gullied land - 4%.

EROSION: 1 - 49%; 2 - 43%; 3 - 5%; 4 - 3%.

LAND CAPABILITY: IV - 2%; VI - 23%; VII - 55%; VIII - 20%.

SURFACE DRAINAGE: Good; principal waterway - 5,700 ft.; drainage system consists of three well defined main channels with tributaries.

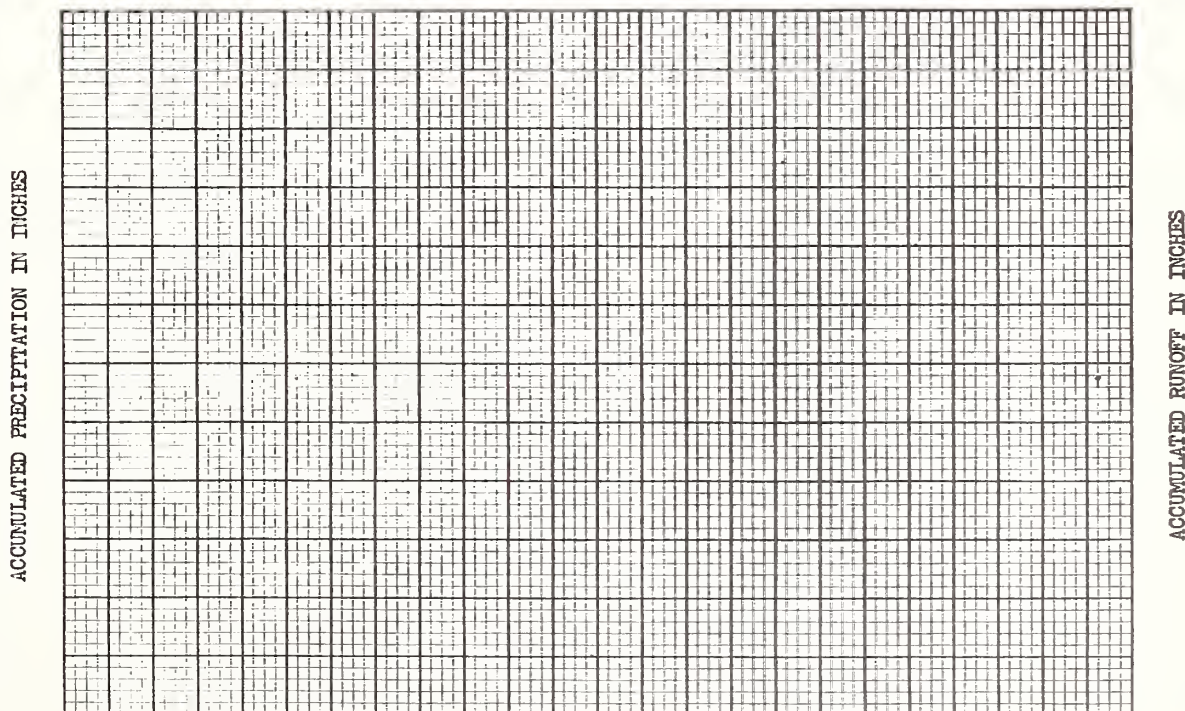
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete, V-notch, broad-crested weir; precipitation - recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 396 ac. native cover of annual grasses and coastal sage types; 17 ac. disked on contour in fall or early spring, cultivated in spring with spring tooth harrow and planted to blackeyed beans.

GENERALLY REPRESENTS: Areas with native cover in Southern California Coastal Plains and Neighboring Islands with similar soils and topography.

ACCUMULATED PRECIPITATION AND RUNOFF



Research project of USDA.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Santa Paula, Calif. Watershed W-1

[illegible]

LOCATION: Ventura Co., Calif.; 3 mi. N. and 2 mi. W. of Somis; minor tributaries to Pacific Ocean.

AREA: 106 ac.

SHAPE: Roughly rectangular, about 1,500 ft. wide by 3,600 ft. long.

SLOPES: 6% is in 16-30% class; 37% in 31-50% class; 57% in 51+% class. Aspect S.

SOILS: Residual, developed on sandstone and shale; topsoil - medium textured, medium granular structure, moderately deep (6-16 in., av. 10 in.); subsoil - loam with uniform moderate permeability through entire soil profile; internal drainage - medium to rapid. San Andreas loam 72%; San Andreas sandy loam - 9%; Berryessa clay loam - 12%; rough gullied land - 7%.

EROSION: 2 - 43%; 3 - 48%; 4 - 9%.

LAND CAPABILITY: IV - 6%; VI - 18%; VII - 19%; VIII - 57%.

SURFACE DRAINAGE: Good; principal waterway - 3,600 ft.; drainage system consists of one well defined channel with three major and several minor tributaries.

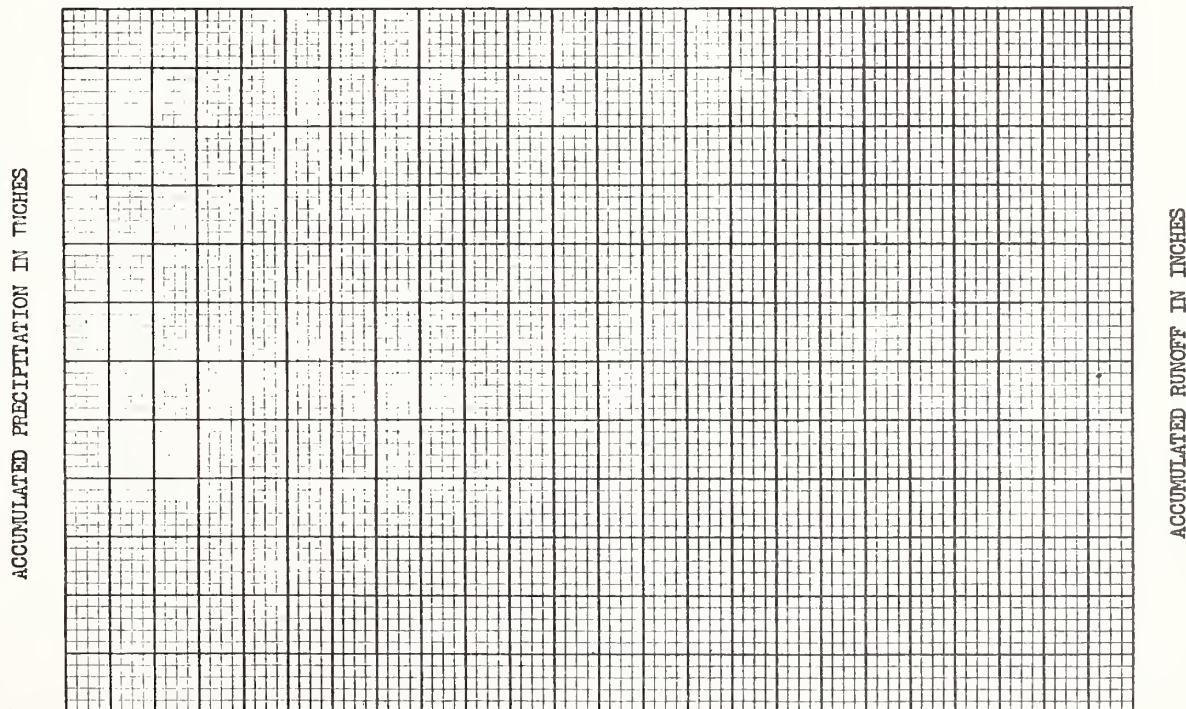
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete, V-notch, broad-crested weir; precipitation - recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 80 ac. native cover of annual grasses and coastal sage types; 26 ac. plowed in fall and left fallow, cultivated in spring with spring tooth harrow and fine loose mulch left on top for preparation of seed bed for lima beans.

GENERALLY REPRESENTS: Mixed cover watersheds with predominately native vegetation in the Southern Calif. Coastal Plains and Neighboring Islands with similar soils and topography.

#### ACCUMULATED PRECIPITATION AND RUNOFF



MONTHLY PRECIPITATION AND RUNOFF (Inches) Santa Paula, Calif. Watershed N-3

[illegible]

**Notes:**



LOCATION: Ventura Co., Calif.;  $2\frac{1}{2}$  mi. N. and 2 mi. W. of Somis; minor tributaries to Pacific Ocean.

AREA: 44.4 ac.

SHAPE: Roughly rectangular, about 800 ft. wide by 2,800 ft. long.

SLOPES: 12% is in 2-4% class; 16% in 9-15% class; 19% in 16-30% class; 41% in 31-50% class; 12% in 51% class. Aspect S-SW.

SOILS: Residual, developed on soft shale; topsoil - medium textured, weak, coarse granular structure, moderately deep (12-19 in., av. 15 in.); subsoil - clay loams with moderately slow permeability; internal drainage - medium to slow. Berryessa silty clay - 60%; Yolo loam - 22%; Berryessa clay loam - 16%; rough gullied land - 2%.

EROSION: 2 - 64%; 3 - 34%; 4 - 2%.

LAND CAPABILITY: III - 12%; IV - 35%; VI - 41%; VII - 12%.

SURFACE DRAINAGE: Good; principal waterway - 2,800 ft.; drainage system consists of one well defined channel about 2,400 ft. long.

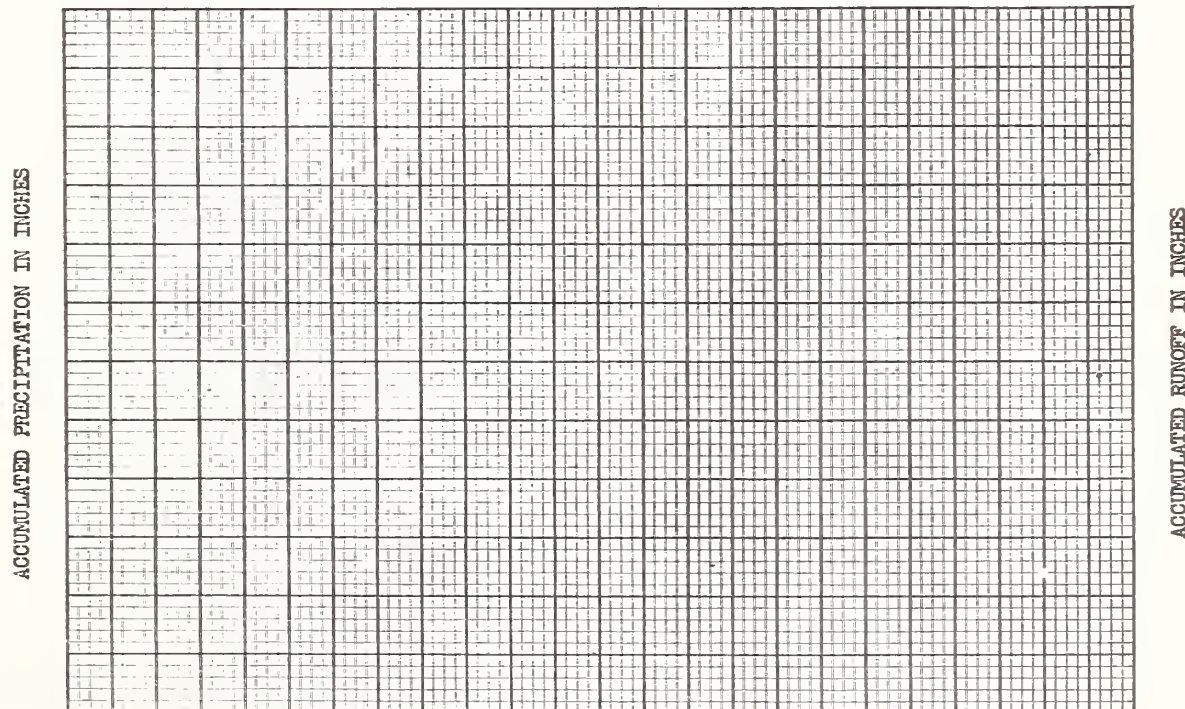
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete, V-notch, broad-crested weir; precipitation - recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 41 ac. planted in lima beans, plowed or harrowed in fall and left fallow, cultivated with spring tooth harrow in spring and replanted; 3.4 ac. of gullied land in native cover of brush and grass.

GENERALLY REPRESENTS: Cultivated areas in Southern California Coastal Plains and Neighboring Islands with similar land use, soils, and topography.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Santa Paula, Calif. Watershed W-4

[illegible]

Notes:

5-57

SANTA PAULA, CALIF. Watershed W-5

LOCATION: Ventura Co., Calif.;  $2\frac{1}{2}$  mi. N. and  $2\frac{1}{2}$  mi. W. of Somis; minor tributaries to Pacific Ocean.

AREA: 55.1 ac.

SHAPE: Roughly rectangular, about 850 ft. wide by 3,300 ft. long.

SLOPES: 16% is in 5-8% class; 10% in 16-30% class; 45% in 31-50% class; 29% in 51+% class. Aspect S.

SOILS: Residual, developed on soft shale; topsoil - medium textured with weak, coarse granular structure, moderately deep (6-18 in., av. 15 in.); subsoil - clay loams of moderately slow permeability; internal drainage - medium; soil profile relatively uniform throughout. Berryessa clay loam - 69%; Yolo loam - 24%; Antioch loam - 2%; rough gullied land - 5%.

EROSION: 2 - 80%; 3 - 15%; 4 - 5%.

LAND CAPABILITY: III - 15%; IV - 7%; VI - 43%; VII - 31%; VIII - 4%.

SURFACE DRAINAGE: Good; principal waterway - 3,300 ft.; drainage system consists of one well defined channel - 2,700 ft. long.

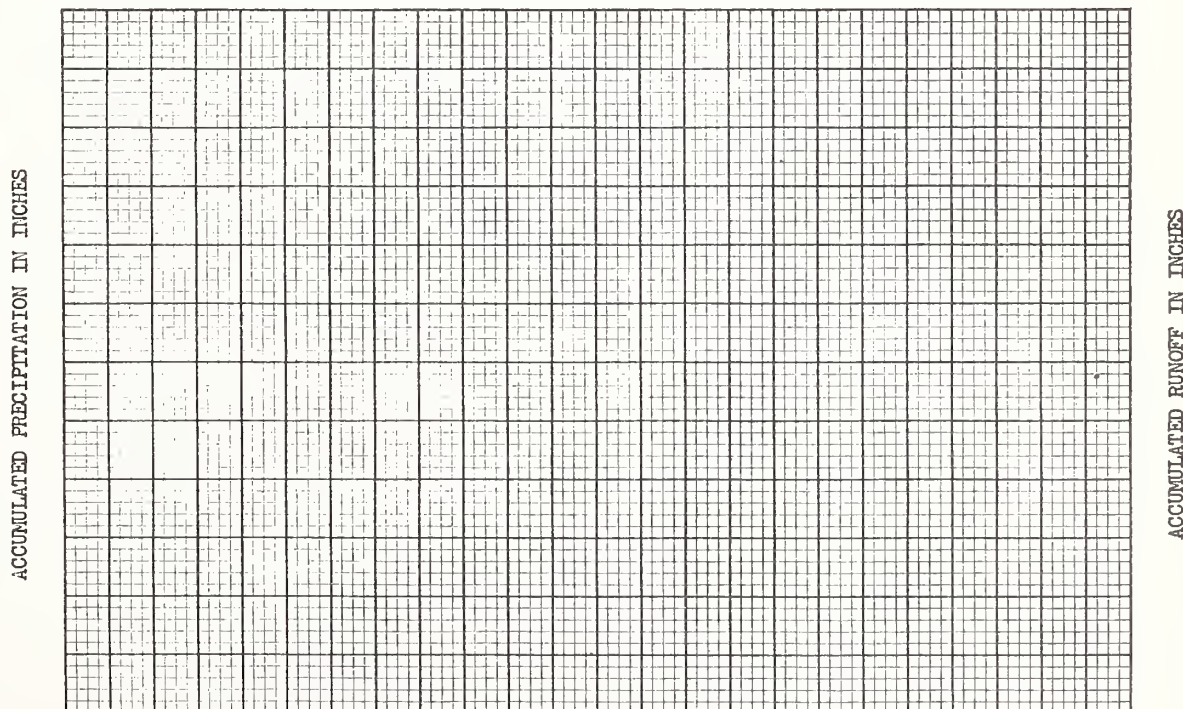
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete, V-notch, broad-crested weir; precipitation - recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 36.3 ac. planted in lima beans, sub-soiled or harrowed in fall and left fallow, cultivated in spring with spring tooth harrow and replanted; 12.3 ac. plowed and harrowed in fall of 1939 and planted to barley which was harvested in 1940, area left fallow with poor stand of volunteer hay; 6.5 ac. in native cover of weeds and grasses.

GENERALLY REPRESENTS: Cultivated areas in the Southern California Coastal Plains and Neighboring Islands with similar soils, cover, and topography.

ACCUMULATED PRECIPITATION AND RUNOFF



Research project of USDA.



MONTHLY PRECIPITATION AND RUNOFF (Inches) Santa Paula, Calif. Watershed W-5

[illegible]

5-57

SANTA PAULA, CALIF. Watershed W-6

LOCATION: Ventura Co., Calif.; 1 mi. N. and 3 mi. W. of Somis; minor tributaries to Pacific Ocean.

AREA: 163 ac.

SHAPE: Roughly rectangular, about 1,900 ft. wide and 4,100 ft. long.

SLOPES: 49% is in 0-1% class; 30% in 2-4% class; 21% in 16-30% class. Aspect S.

SOILS: Older terrace and fans; topsoil - medium textured, weak, coarse granular to massive structure, moderately deep (12-18 in., av. 13 in.); subsoil - silty clay of slow permeability; internal drainage - slow. Rincon silty clay loam - 30%; Rincon silty clay - 29%; Rincon clay loam - 19%; Sorrento clay loam - 18%; Rincon gravelly clay loam - 3%; rough gullied land - 1%.

EROSION: 1 - 51%; 2 - 49%.

LAND CAPABILITY: I - 49%; II - 30%; IV - 21%.

SURFACE DRAINAGE: Good; principal waterway 5,700 ft.; drainage system consists of one well defined channel about 3,000 ft. long.

CHARACTER OF FLOW: Ephemeral, continuous.

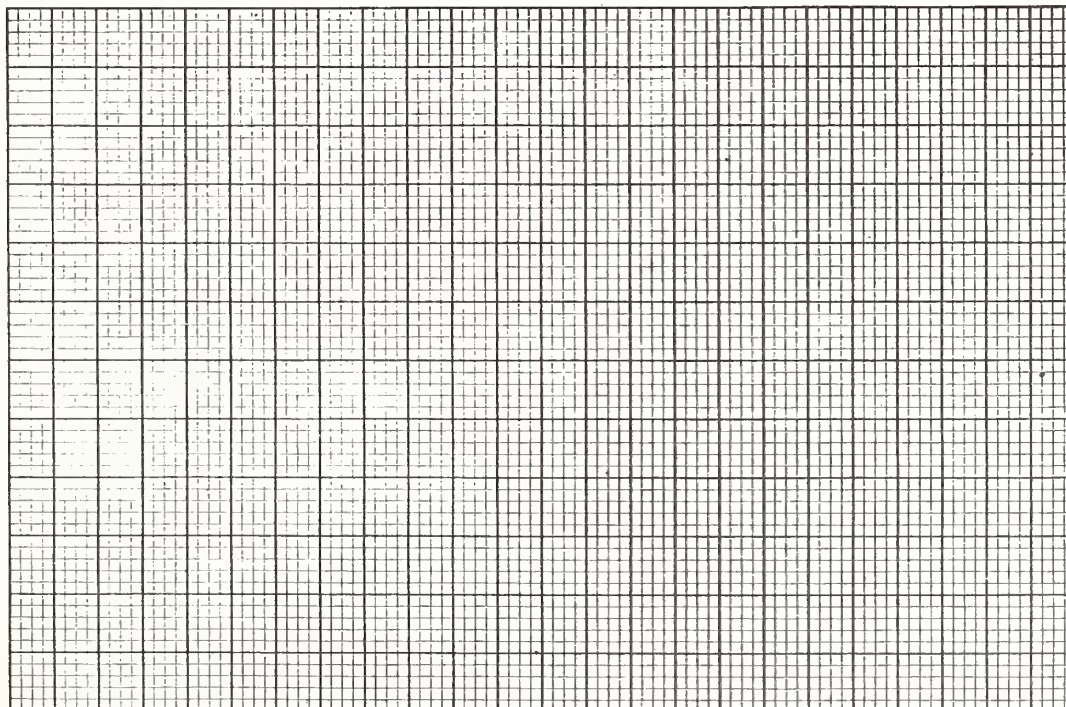
INSTRUMENTATION: Runoff - concrete, V-notch, broad-crested weir; precipitation - recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 158 ac. planted in lima beans, sub-soiled and plowed in fall and left fallow, cultivated in spring with spring tooth harrow and replanted; 5 ac. straight row lemon orchard with volunteer cover crop disked in spring of 1941.

GENERALLY REPRESENTS: Cultivated areas in the Southern California Coastal Plains and Neighboring Islands with similar land use, soils, and topography.

ACCUMULATED PRECIPITATION AND RUNOFF

ACCUMULATED PRECIPITATION IN INCHES



ACCUMULATED RUNOFF IN INCHES

Research project of USDA.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Santa Paula, Calif. Watershed W-6**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
P													
Q													
P	RECORDS WERE MAINTAINED ON THIS WATERSHED FROM OCTOBER 1938 TO JANUARY 1942.												
Q													
P	SEDIMENT ACCUMULATIONS AT GAGING STATIONS PREVENTED COMPUTATION OF RUNOFF												
Q													
P	VOLUMES FOR MANY RUNOFF PERIODS. SOME RECORDS FOR INDIVIDUAL STORM RUNOFF												
Q													
P	PERIODS ARE ADEQUATE; THE WATERSHED DESCRIPTION OF THE PREVIOUS PAGE IS												
Q													
P	GIVEN AS A REFERENCE FOR THE STUDY OF THESE INDIVIDUAL STORMS.												
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Q													
Av. P													
Av. Q													
Normal P													
Notes:													



Santa Paula, Calif. Honda at Berylwood Rd.

LOCATION: Ventura Co., Calif.;  $4\frac{1}{2}$  mi. S of Santa Paula; minor tributaries to the Pacific Ocean.

AREA: 735 ac. (1.1 sq. mi.)

SHAPE: Roughly rectangular, about 0.5 mi. wide by 2.6 mi. long.

SLOPES: 17% is in 3-10% class; 1% in 11-25%; 41% in 26-40%; 41% in 40+%. Aspect S-SW.

SOILS: Residual, developed on shale and sandstone; topsoil - fine textured, weak, coarse granular structure, moderately deep (6-15 in., av. 12 in.); subsoil - clay loams of moderately slow permeability; internal drainage - medium. Berryessa silty clay - 39%; Berryessa clay loam - 25%; San Andreas loam - 19%; San Andreas gravelly sandy loam - 10%; Rincon silty clay loam - 5%; rough gullied

EROSION: 1 - 35%; 2 - 46%; 3 - 13%; 4 - 6%. land - 2%.

LAND CAPABILITY: II - 2%; III - 3%; IV - 5%; VI - 22%; VII - 55%; VIII - 13%.

SURFACE DRAINAGE: Good; principal waterway - 2.6 mi.; drainage system consists of one well defined channel which branches into three tributaries in the upper third of the watershed.

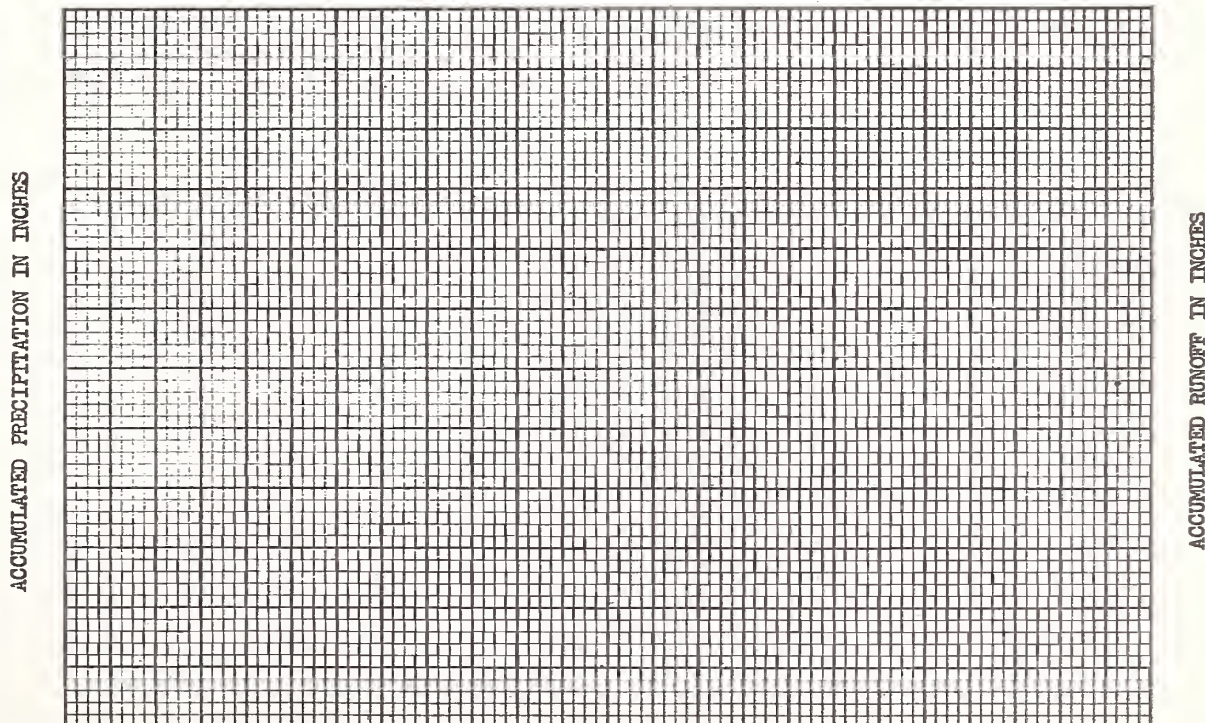
CHARACTER OF FLOW: Ephemeral, continuous; some part of flow each year due to irrigation waste water.

INSTRUMENTATION: Runoff - large rectangular concrete culvert rated with a current meter; precipitation - one recording gage at lower end of watershed and standard Weather Bureau gage at upper end.

WATERSHED CONDITIONS: 517 ac. native cover of annual grasses and coastal sage types; 142 ac. clean cultivated in winter and left fallow as a moisture conservation measure and planted to beans in spring; this practice left land highly susceptible to sheet and gully erosion which produced large amounts of sediment; 26 ac. hay land.

GENERALLY REPRESENTS: Mixed cover watersheds in Southern California Coastal Plains and Neighboring Islands with similar soils and topography.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Santa Paula, Calif. Honda at  
Berylwood Rd.

51.6-2



Santa Paula, Calif. Milligan at Los Angeles Ave.

LOCATION: Ventura Co., Calif.; 6 mi. S of Santa Paula; minor tributaries to the Pacific Ocean.

AREA: 1607 ac. (2.5 sq. mi.)

SHAPE: Roughly rectangular, about 0.6 mi. wide by 3.8 mi. long.

SLOPES: 5% is in 0-2% class; 36% in 3-10%; 7% in 11-25%; 17% in 26-40%; 35% in 40+%. Aspect S.

SOILS: 67% residual, 33% alluvial, developed from soft shale; topsoil - fine textured, weak, coarse, granular structure, moderately deep; subsoil - silty clay of moderately slow permeability; internal drainage - medium. Berryessa silty clay - 49%; Mocho clay loam - 22%; Sorrento clay loam - 20%; Antioch loam - 4%; San Andreas gravelly sandy loam - 3%; Yolo sandy loam - 2%.

EROSION: 1 - 39%; 2 - 47%; 3 - 8%; 4 - 6%.

LAND CAPABILITY: I - 10%; II - 15%; III - 10%; IV - 6%; VI - 19%; VII - 32%; VIII - 8%.

SURFACE DRAINAGE: Good; principal waterway - 3.8 mi.; drainage system consists of one main channel with several branches in the upper half of the watershed.

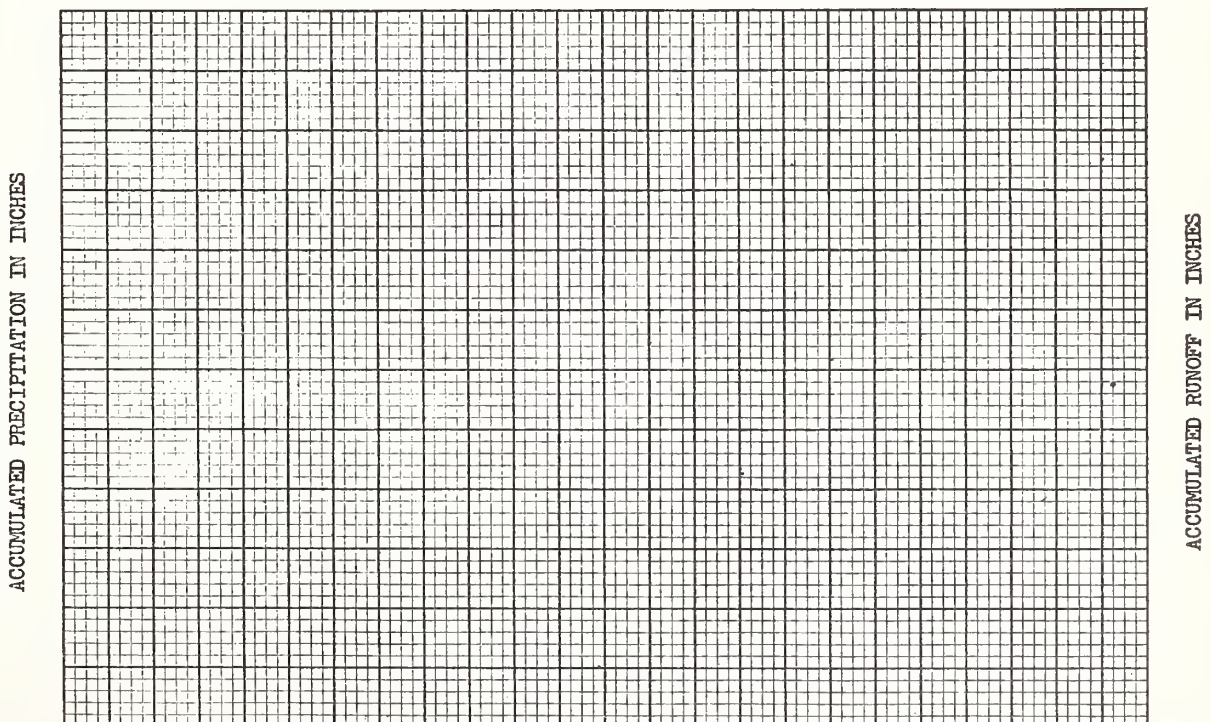
CHARACTER OF FLOW: Ephemeral, continuous. Some flow each year due to irrigation waste water.

INSTRUMENTATION: Runoff - large rectangular concrete culvert rated with a current meter; precipitation - four standard Weather Bureau non-recording gages.

WATERSHED CONDITIONS: 868 ac. clean cultivated in winter as moisture conservation measure and planted to beans in spring; this practice left land highly susceptible to sheet and gully erosion which produced large amounts of sediment; 627 ac. native cover of annual grasses and coastal sage types; 85 ac. walnut orchard; 27 ac. hay land.

GENERALLY REPRESENTS: Mixed cover watersheds in Southern California Coastal Plains and Neighboring Islands with similar soils and topography.

ACCUMULATED PRECIPITATION AND RUNOFF





Santa Paula, Calif. Milligan at  
Los Angeles Ave.

51.7-2

Santa Paula, Calif.      Honda at Perkins Rd.

LOCATION: Ventura Co., Calif.; 6 mi. S of Santa Paula; minor tributaries to the Pacific Ocean.

AREA: 1832 ac. (2.9 sq. mi.)

SHAPE: Roughly rectangular, about 0.9 mi. wide by 3.8 mi. long.

SLOPES: 16% is in 0-2% class; 31% in 3-10%; 6% in 11-25%; 30% in 26-40%; 17% in 40+%. Aspect S.

SOILS: 60% residual; 40% alluvial developed on soft shales and sandstones; topsoil - fine textured, weak, coarse, granular structure moderately deep; subsoil - clay loams of moderately slow permeability; internal drainage - medium. San Andreas loam - 19%; Berryessa silty clay - 18%; Rincon silty clay loam - 17%; Berryessa clay loam - 15%; Sorrento clay loam - 11%; Yolo sandy loam - 7%; Antioch loam - 6%; Rincon silty clay - 5%; rough gullied land - 2%.

LAND CAPABILITY: I - 22%; II - 22%; III - 4%; IV - 9%; VI - 13%; VII - 23%; VIII - 7%.

SURFACE DRAINAGE: Good; principal waterway - 4 mi.; drainage system consists of one main channel with one major and several minor tributaries.

CHARACTER OF FLOW: Ephemeral, continuous; some portion of flow each year comes from irrigation waste water.

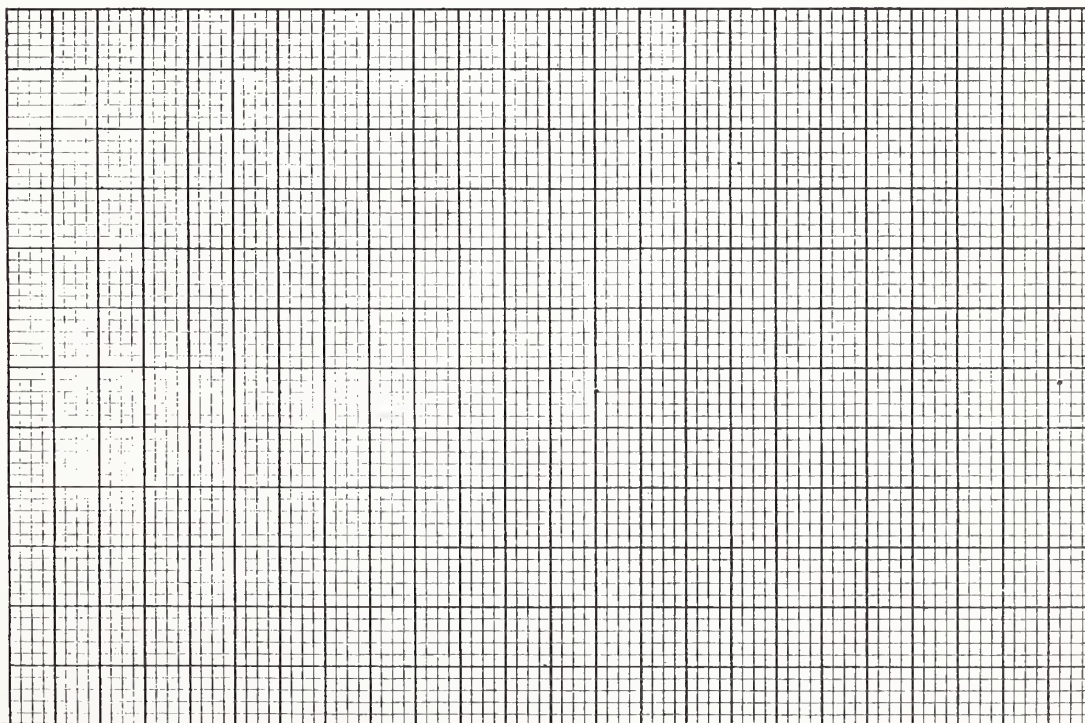
INSTRUMENTATION: Runoff - large rectangular concrete culvert rated with current meter; precipitation - two recording gages and one standard Weather Bureau gage.

WATERSHED CONDITIONS: 867 ac. clean cultivated in winter and left fallow as a moisture conservation measure and planted to beans in spring; this practice left land susceptible to sheet and gully erosion which produced large amounts of sediment; 702 ac. native cover of annual grasses and coastal sage types; 210 ac. citrus orchard; 41 ac. hay land; 9 ac. walnut orchard; 3 ac. cultivated in corn.

GENERALLY REPRESENTS: Mixed cover watersheds in the Southern California Coastal Plains and Neighboring Islands with similar soils and topography.

ACCUMULATED PRECIPITATION AND RUNOFF

ACCUMULATED PRECIPITATION IN INCHES



ACCUMULATED RUNOFF IN INCHES

Santa Paula, Calif. Honda at Perkins  
Rd.

51.8-2



Santa Paula, Calif. Colorado & Honda at Beardisley

LOCATION: Ventura Co., Calif.;  $6\frac{1}{2}$  mi. S of Santa Paula; minor tributaries to the Pacific Ocean.

AREA: 5939 ac. (9.3 sq. mi.)

SHAPE: Roughly rectangular, about 2.0 mi. wide by 4.7 mi. long.

SLOPES: 18% is in 0-2% class; 39% in 3-10%; 8% in 11-25%; 18% in 26-40%; 17% in 40+%. Aspect S.

SOILS: 42% residual developed on shale and sandstone; 35% alluvial; 23% terrace; topsoil - fine textured, weak, coarse, granular structure moderately deep; subsoil - clay loams of slow to moderately slow permeability; internal drainage - slow to medium. Sorrento clay loam - 19%; Berryessa silty clay - 16%; Berryessa clay loam - 13%; Rincon clay loam - 12%; Mocho clay loam - 11%; San Andreas loam - 10%.

EROSION: 1 - 49%; 2 - 39%; 3 - 7%; 4 - 5%.

Antioch loam - 8%; Yolo sandy loam - 7%; Rincon silty clay - 4%.

LAND CAPABILITY: I - 25%; II - 16%; III - 8%; IV - 9%; VI - 14%; VII - 19%; VIII - 9%.

SURFACE DRAINAGE: Good; principal waterway - 4.9 mi.; drainage system consists of two main and many secondary channels.

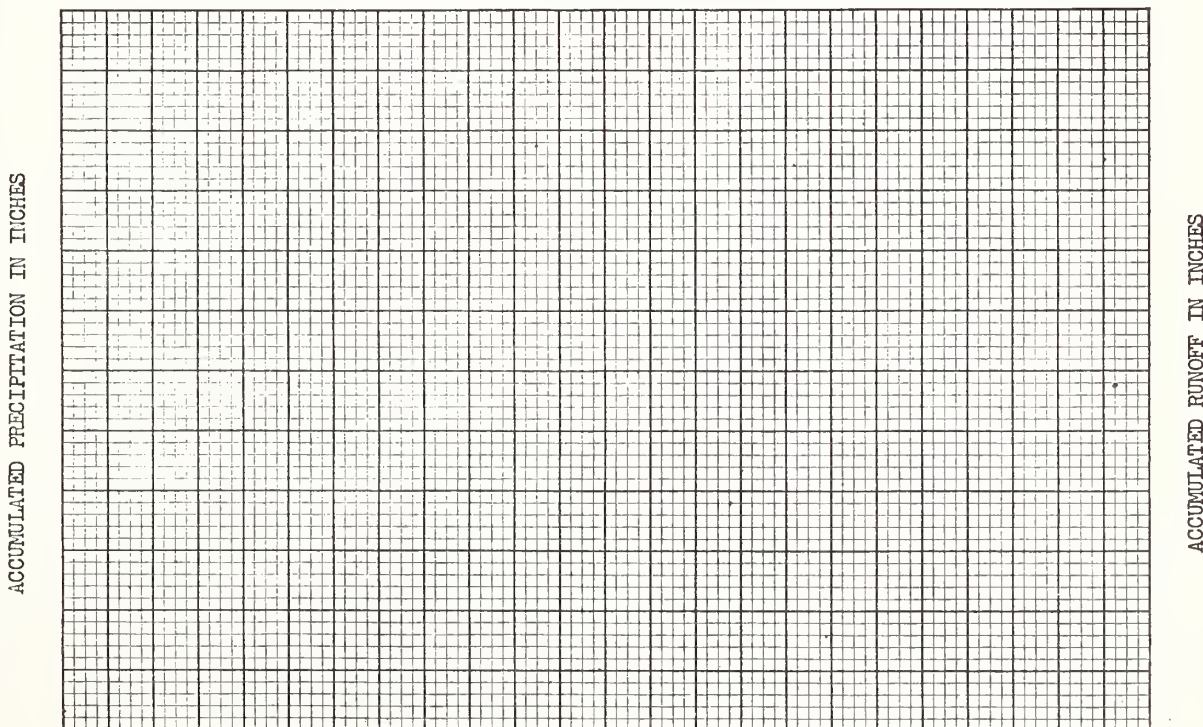
CHARACTER OF FLOW: Ephemeral, continuous; part of flow of each year produced by irrigation waste water.

INSTRUMENTATION: Runoff - large wooden bridge with boarded walls and floor rated by current meter; precipitation - three recording gages and three standard Weather Bureau gages.

WATERSHED CONDITIONS: 3005 ac. clean cultivated in winter and left fallow as a moisture conservation measure and planted to beans in spring; this practice left land highly susceptible to sheet and gully erosion which produced large amounts of sediment; 1871 ac. native cover of annual grasses and coastal sage types; 408 ac. citrus orchard; 359 ac. walnut orchard; 293 ac. hay land; 3 ac. cultivated in corn.

GENERALLY REPRESENTS: Mixed cover watersheds in the Southern California Coastal Plains and Neighboring Islands with similar soils and topography.

ACCUMULATED PRECIPITATION AND RUNOFF

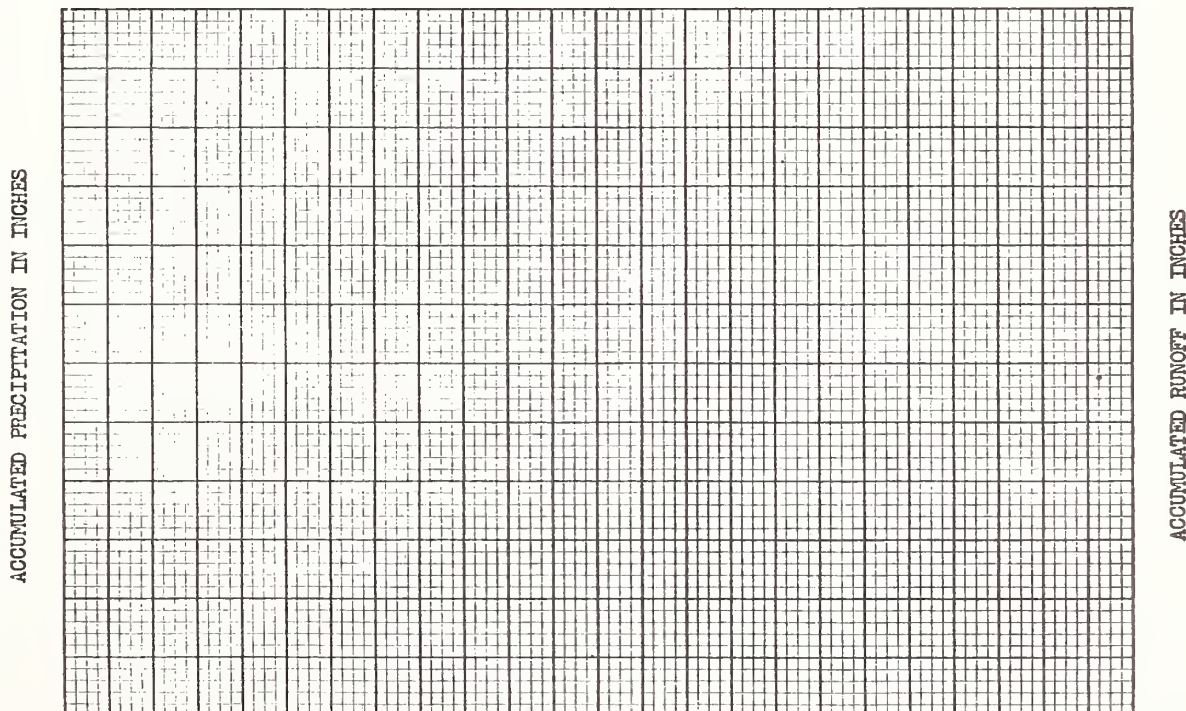


Santa Paula, Calif. Colorado & Honda  
at Beardsley

**Notes:**

SEBASTOPOL, CALIFORNIA Watershed W-1LOCATION: Sonoma Co., Calif.; 3-1/2 mi. S of Sebastopol; Russian River Basin.AREA: 83 ac.SHAPE: Roughly rectangular, about 1,200 ft. wide by 3,000 ft. long.SLOPES: 1% is in 0-2% class; 2% in 2-6%; 6% in 6-15%; 75% in 15-30%; 16% in 30-50%. Aspect E-NE.SOILS: Residual; topsoil - coarse textured, granular structure, moderately deep (15-18 in.); subsoil - sandy clay of slow permeability over soft, very fine grained sandstone; internal drainage - slow. Steinbeck fine sandy loam - 99%; Graton fine sandy loam - 1%.EROSION: 1 - 20%; 2 - 80%.LAND CAPABILITY: II - 3%; III - 6%; IV - 75%; VI - 16%.SURFACE DRAINAGE: Good; principal waterway - 3,000 ft.; drainage system consists of "Y" shaped well defined channel about 2,800 ft. long with masonry erosion control structures.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 5 ft. wooden Parshall flume; precipitation - recording gage with standard Weather Bureau check gage.WATERSHED CONDITIONS: 13 ac. apple orchard cultivated, in general, across slope with volunteer cover crop during the winter; 70 ac. in pasture with good grass cover. Native hardwood trees typical of the coastal section grow along the drainage channels on the upper watershed.GENERALLY REPRESENTS: Mixed cover (pasture-orchard) areas in San Francisco Bay Area with similar soils and topography.

## ACCUMULATED PRECIPITATION AND RUNOFF





**MONTHLY PRECIPITATION AND RUNOFF (Inches) Sebastopol, Calif. Watershed W-1**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1936 P Q										*0.20 0	*0.01 0	*3.00 0	
1937 P Q	*5.83 0	*9.75 4.78	*7.26 3.69	*1.68 .05	*0.18 0	*1.07 0	NR NR	NR NR	NR NR	*.75 0	*7.14 .15	*5.85 1.97	
1938 P Q	5.92 3.63	9.36 8.10	9.58 5.85	2.59 .51	.06 0	NR NR	NR NR	NR NR	0.33 0	1.93 0	1.72 .01	3.40 .04	
1939 P Q	4.43 .28	2.16 0	2.62 0	.16 0	1.10 0	0 0	0 0	0 0	.15 0	.70 0	.41 0	2.66 0	14.39 .28
1940 P Q	10.97 2.67	11.79 8.85	7.24 4.88	1.75 0	1.46 0	.13 0	0 0	0 0	.25 0	1.64 0	2.96 0	12.61 4.76	50.80 21.16
1941 P Q	12.18 8.42	9.09 5.82	5.48 2.59	6.56 3.98	2.52 .07	.19 0	NR NR	NR NR	NR NR	1.90 0	3.21 0	9.12 2.27	
1942 P Q	6.81 4.83	8.56 7.23	4.36 1.95	4.82 1.60	1.86 .05	NR NR	NR NR	NR NR	NR NR	.56 0	6.98 .19	5.86 2.44	
1943 P Q	8.40 6.10	*2.73 1.15	*4.85 2.91	*2.67 .30	*.05 0	0 0	*.03 0						
P													
Q													
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** Av. P ** Av. Q	7.69 3.30	8.45 5.80	6.09 3.16	2.93 1.02	1.20 .02	NR NR	NR NR	NR NR	NR NR	1.25 0	3.74 .04	6.58 1.91	
Normal P	6.07	5.25	4.13	1.96	1.17	.28	.04	.02	.38	1.54	3.26	5.47	29.57

**Notes:** \*Estimated. \*\*Does not include part-year amounts for 1936 and 1943. NR indicates no record for that month. Quality of records: P - fair; Q - fair due to periods of no record. Station not operated during summer months due to little or no rain. Normal P based on 68-yr. record (1889-1956) at Santa Rosa, Calif.

6-57

SEBASTOPOL, CALIFORNIA Watershed W-2

LOCATION: Sonoma Co., Calif.; 2 mi. NW of Sebastopol; Russian River Basin.

AREA: 56 ac.

SHAPE: Roughly rectangular, about 600 ft. wide by 3,600 ft. long.

SLOPES: 20% is in 2-6% class; 70% in 6-15%; 10% in 15-30%. Aspect E.

SOILS: Residual; topsoil - coarse textured, single grain structure, moderately deep (18-20 in.); subsoil - loam to sandy clay loam material of moderately slow permeability over feebly cemented fine sandstone; internal drainage - medium. Goldridge fine sandy loam - 99%; Graton fine sandy loam - 1%.

EROSION: 1 - 20%; 2 - 80%.

LAND CAPABILITY: II - 20%; III - 70%; IV - 10%.

SURFACE DRAINAGE: Good; principal waterway - 3,600 ft.; drainage system consists of one well defined channel about 3,400 ft. long sections of which are stabilized with concrete lining and other structures.

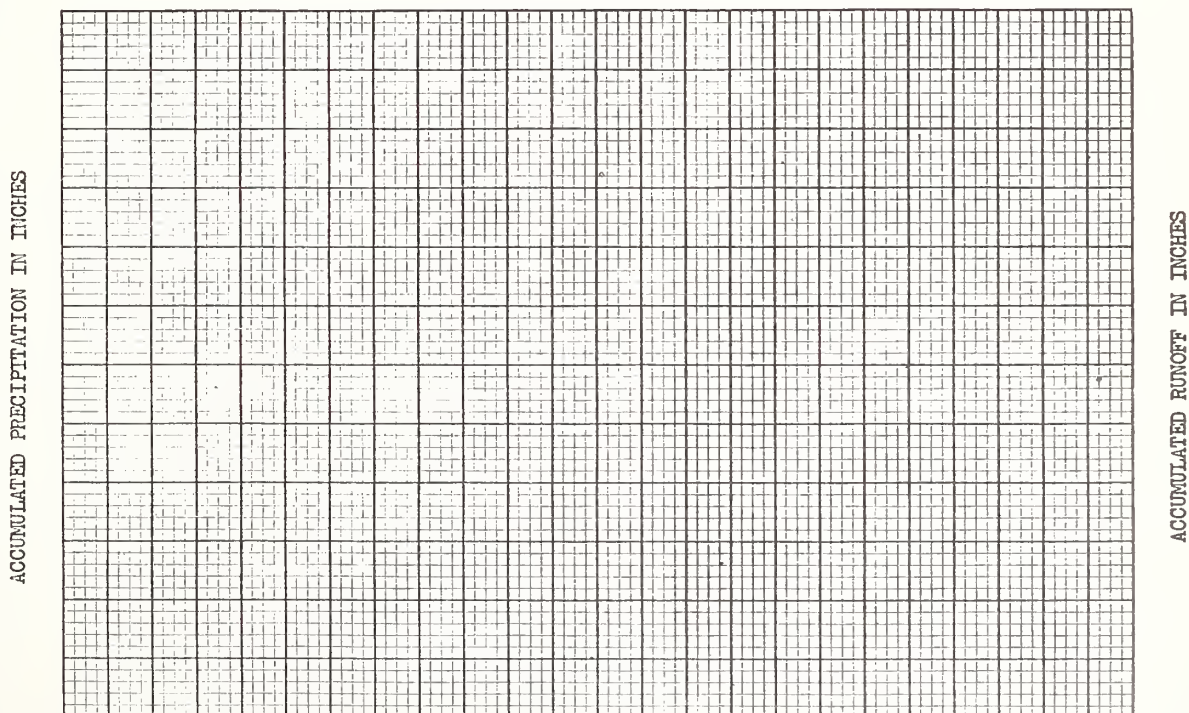
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 5 ft. wooden Parshall flume; precipitation - recording gage with standard Weather Bureau check gage.

WATERSHED CONDITIONS: Practically entire area, apple orchard cultivated generally across slope, with volunteer cover crop during winter months. A few small clumps of redwoods are scattered along or near main channel.

GENERALLY REPRESENTS: Areas of cultivated orchards with winter cover crop in the San Francisco Bay Area with similar soils and topography.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Sebastopol, Calif. Watershed W-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1936 P Q	1.61 0	12.87 8.09	1.55 .11	1.34 .47	0.38 0	0.22 0	NR NR	NR NR	NR NR	0.20 0	0.01 0	2.71 0	
1937 P Q	5.31 .21	9.37 5.72	6.68 1.92	1.62 .11	.16 0	1.20 0	NR NR	NR NR	NR NR	.75 .10	7.14 1.36	5.85 2.74	
1938 P Q	3.66 2.28	9.89 5.25	7.90 3.05	2.28 .26	*.06 0	NR NR	NR NR	NR NR	NR NR	1.89 0	1.67 0	2.98 0	
1939 P Q	4.64 .22	2.42 0	3.21 0	.17 0	.86 0	0 0	0 0	0 0	.40 0	.13 0	.54 0	2.58 .01	14.95 .23
1940 P Q	14.09 4.03	12.98 6.88	7.07 3.18										
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** Av. P ** Av. Q	3.81 .68	8.64 4.76	4.84 1.27	1.35 .21	.36 0	.47 0	NR NR	NR NR	NR NR	.74 .02	2.34 .34	3.53 .69	
Normal P	6.07	5.25	4.13	1.96	1.17	.28	.04	.02	.38	1.54	3.26	5.47	29.57

**Notes:** \*Estimated. \*\*Does not include part-year amount for 1940. NR indicates no record for that month. Quality of records: P - fair; Q - fair due to periods of no record. Station not operated during summer months due to little or no rain. Normal P based on 68-yr. record (1889-1956) at Santa Rosa, Calif.



5-57

VACAVILLE, CALIF. Watershed W-1

LOCATION: Solano Co., Calif.; 4 mi. N. and 1 mi. W. of Vacaville; Sacramento River Basin.

AREA: 40 ac.

SHAPE: Roughly rectangular, about 100 ft. wide by 1,700 ft. long.

SLOPES: 42% is in 9-16% class; 24% in 16-31%; 34% in 31-51%. Aspect S-SE.

SOILS: Residual; topsoil - 60% coarse textured, weak granular structure, 40% medium textured, weak blocky structure, moderately deep (20-36 in., av. 26 in.); subsoil - loam of moderate permeability; substratum - weathered sandstone; internal drainage - medium. Los Osas fine sandy loam - 60%; Los Osas loam - 40%.

EROSION: 2 - 60%; 3 - 40%.

LAND CAPABILITY: III - 18%; IV - 44%; VI - 38%.

SURFACE DRAINAGE: Good; principal waterway - 1,700 ft.; drainage system consists of 600 ft. ditch the upper 200 ft. of which is concrete lined.

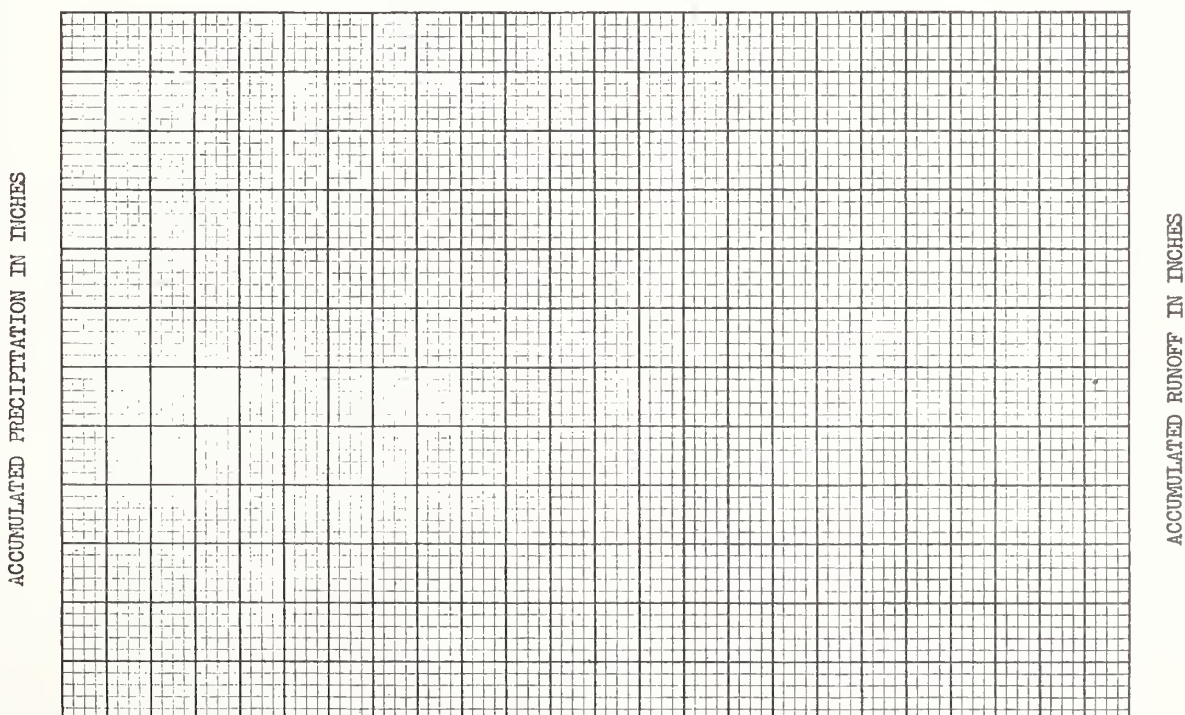
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - 2 ft. wooden Parshall flume; precipitation - one recording rain gage with standard Weather Bureau check gage.

WATERSHED CONDITIONS: 38 ac. straight row apricot orchard with cover crop cultivated in spring; 2 ac. native cover.

GENERALLY REPRESENTS: Orchard areas in the Sacramento-San Joaquin Valley with similar soils and topography.

ACCUMULATED PRECIPITATION AND RUNOFF



Vacaville, Calif. Watershed W-1

** Av. P	6.99	10.10	5.04	2.18	1.01				.97	1.97	6.87
** Av. Q	1.31	4.50	1.89	.66	.30				0	0	1.10

**Notes:** \*Estimated. \*\*Does not include part-year amount for 1936. NR indicates no record for month. Quality of record: P - fair; Q - fair. Station not operated during months of June, July, Aug., and Sept. due to little or no rain. Normal P based on 76-yr. record (1881-1956) at Vacaville, Calif.

WATSONVILLE, CALIFORNIA Watershed W-1

LOCATION: Santa Cruz Co., Calif.;  $5\frac{1}{2}$  mi. N. of Watsonville; minor tributaries to Pacific Ocean.

AREA: 16.8 ac.

SHAPE: Roughly rectangular, about 500 ft. wide by 1,500 ft. long.

SLOPES: 3% is in 5-10% class; 16% in 10-15%; 81% in 15-20%. Aspect S.

SOILS: Marine terrace; topsoil - coarse textured, weak, fine, granular structure, shallow depth (10-20 in., av. 18 in.); subsoil - very compact clay with slow to very slow permeability. Internal drainage - very slow. Tierra sandy loam - 84%; Montezuma adobe clay - 16%. Montezuma adobe clay when dry has many large cracks which seal when wet to severely limit water intake.

EROSION: 2 - 80%; 3 - 20%.

LAND CAPABILITY: III - 15%; IV - 73%; VI - 12%.

SURFACE DRAINAGE: Good; principal waterway - 1,700 ft.; drainage system consists of 1,100 ft. of underground concrete pipe with inlets spaced at 50 ft. intervals and 600 ft. of concrete lined ditch at lower end of watershed.

CHARACTER OF FLOW: Ephemeral, continuous.

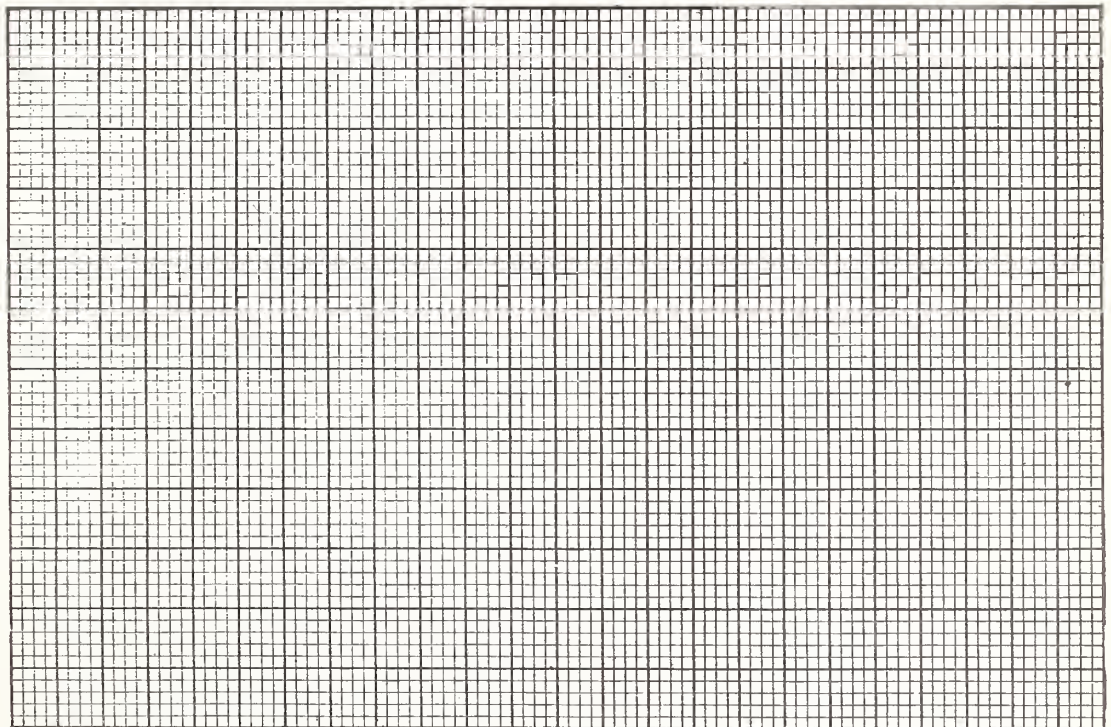
INSTRUMENTATION: Runoff - concrete, V-notch, broad crested weir with 2:1 side slopes, 6 hr. chart, 12 hr. chart after March, 1943; precipitation - two recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 5.7 ac. apple orchard approx. 25 yrs. old; 11.1 ac. young apple orchard planted in spring of 1939, spacing of all trees approx. 25 ft. Large sediment contribution caused accumulation at gaging station which gave erroneous record during falling stages and prevented computation of runoff volumes.

GENERALLY REPRESENTS: Orchard areas in the coastal section of the San Francisco Bay Area with similar soil and topography.

# ACCUMULATED PRECIPITATION AND RUNOFF

ACCUMULATED PRECIPITATION IN INCHES



ACCUMULATED RUNOFF IN INCHES



MONTHLY PRECIPITATION AND RUNOFF (Inches) Watsonville, Calif. Watershed W-1

[illegible]

LOCATION: Santa Cruz Co., Calif.; 8 mi. NW of Watsonville; minor tributaries to the Pacific Ocean

AREA: 18.5 ac.

SHAPE: Roughly rectangular, about 900 ft. wide by 1,550 ft. long.

SLOPES: 66% is in 5-10% class; 11% in 11-20%; 3% in 21-40%; 20% in 41+%. Aspect W.

SOILS Marine terrace; topsoil - very coarse textured, single grained structure, shallow depth (10-20 in., av. 12 in.); subsoil - slightly compact sandy clay loam of moderately slow permeability; substratum - deeply weathered, semi-cemented sandstone. Internal drainage - slow. Moro Cajo loamy sand - 100%.

EROSION: 2 - 30%; 3 - 50%; 4 - 20%.

LAND CAPABILITY: III - 30%; IV - 36%; VI - 11%; VII - 3%; VIII - 20%.

SURFACE DRAINAGE: Good; principal waterway - 1,700 ft.; drainage system consists of 1,000 ft. of concrete pipe with inlets spaced at 60 ft. intervals and 700 ft. of concrete lined ditch at lower end of watershed.

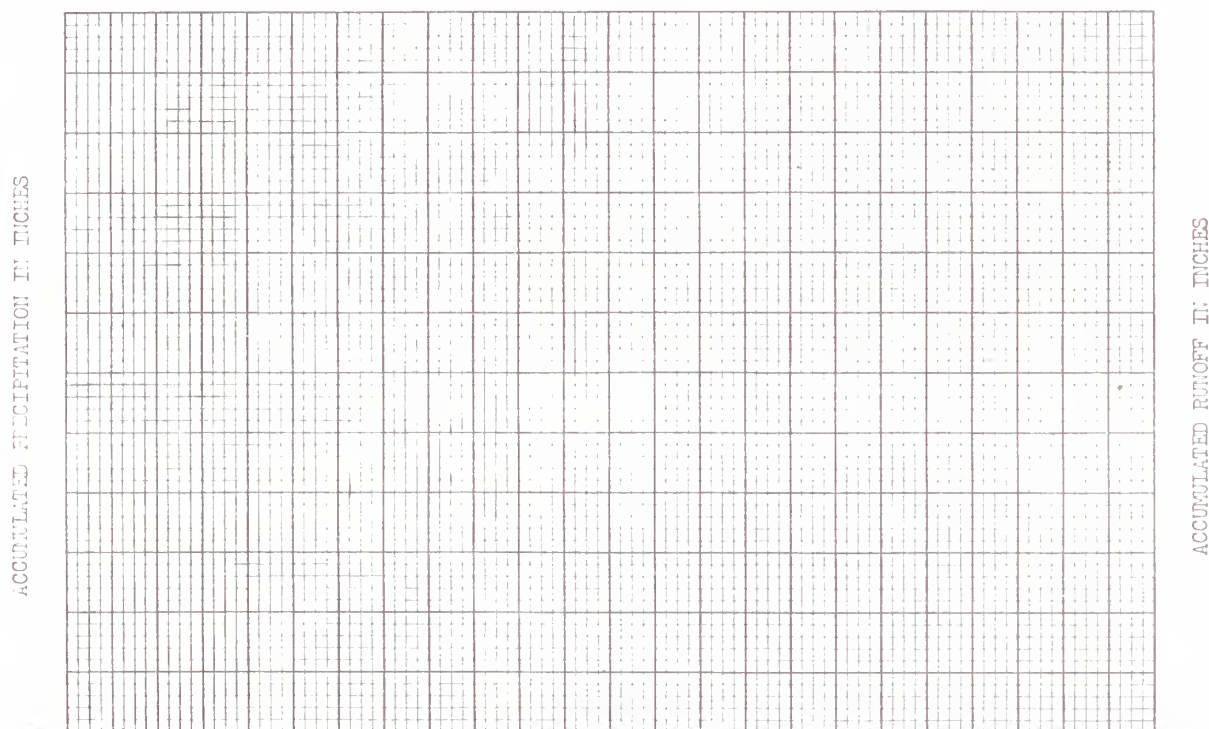
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete, V-notch, broad crested weir with 2:1 side slopes, 6 hr. chart, 12 hr. chart after March, 1943; precipitation - two recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 13.6 ac. 20 yr. old apple orchard practically abandoned, 4.5 ac. native brush and cover, 0.4 ac. road and concrete lined ditch. Large sediment contribution caused accumulation at gaging station which gave erroneous record during falling stages and prevented computation of runoff volumes.

GENERALLY REPRESENTS: Areas of mixed orchard and native vegetation cover in the coastal section of the San Francisco Bay Area with similar soil and topography.

#### ACCUMULATED PRECIPITATION AND RUNOFF



MONTHLY PRECIPITATION AND RUNOFF (Inches) Watsonville, Calif. Watershed W-2

[illegible]

### Notes:



5-56

WATSONVILLE, CALIF. Watershed W-3

LOCATION: Santa Cruz Co., Calif.; 5-1/2 mi. NW of Watsonville; minor tributaries to Pacific Ocean.

AREA: 27.4 ac.

SHAPE: Roughly triangular, about 3000 ft. long by 1800 ft. at the base.

SLOPES: 36% is in 2-5% class; 3% in 5-9%; 61% in 31+%. Aspect S-SE.

SOILS: Marine terrace; topsoil - medium textured, weak granular structure, moderately deep (18-36 in., av. 20 in.); subsoil - very compact sandy clay of slow permeability; internal drainage - very slow. Tierra loam, brown phase - 61%; Pinto loam - 36%; Watsonville loam, brown phase - 3%.

EROSION: 1 - 100%.

LAND CAPABILITY: II - 36%; III - 3%; VII - 61%.

SURFACE DRAINAGE: Good; principal waterway - 1800 ft.; drainage system consists of one well defined channel about 1700 ft. long.

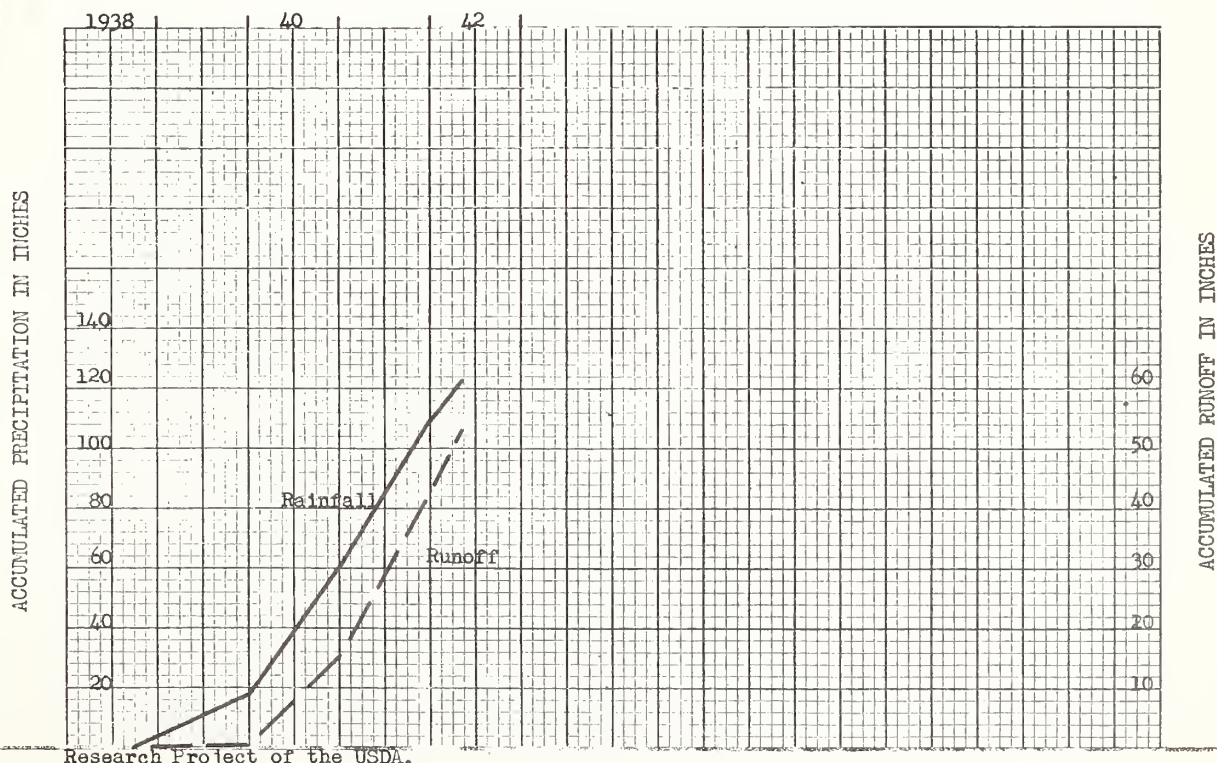
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete, V-notch, broad crested weir, 6 hr. chart, 12 hr. chart after March 1943; precipitation - two recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 26.7 ac. pasture with good grass cover and 0.7 ac. of cultivated land in rotation of small grain and idle.

GENERALLY REPRESENTS: Pasture areas in the coastal section of the San Francisco Bay Area with similar soil and topography.

ACCUMULATED PRECIPITATION AND RUNOFF



Research Project of the USDA.

**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Watsonville, Calif. Watershed W-3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P Q										1.62 0	1.40 0	0.89 0	3.91 0
1939 P Q	3.91 0	2.39 0	4.26 .18	0.36 0	0.86 0	0 0	0 0	0 0	0.41 0	.54 0	.35 0	1.11 0	14.19 .18
1940 P Q	14.38 4.11	9.79 7.28	5.67 2.72	.42 .74	.67 0	N.R. 0	.63 0	.21 0	.19 0	1.61 0	.72 0	9.00 .26	43.29 15.11
1941 P Q	9.64 7.46	11.35 8.72	6.69 4.00	5.89 5.84	1.22 .06	.19 0	.03 Q	N.R. 0	N.R. 0	.78 0	1.34 0	11.41 1.72	48.54 27.80
1942 P Q	5.26 4.32	5.13 4.41	3.16 1.02	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	.95	4.87	3.75	23.12 9.75
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**Av. P **Av. G	9.31 3.86	7.84 5.33	5.54 2.30	2.22 2.19	.92 .02	.06 0	.22 0	.07 0	.20 0	.98 0	.80 0	7.17 .66	35.33 14.36
Normal P	4.01	3.64	3.31	1.27	.61	.12	.01	.02	.25	.96	2.01	4.40	20.61

**Notes:** \*\*Does not include part year amounts for 1938 and 1942. Quality of records: P - fair; Q - fair. Normal P based on 61-yr. record (Oct 1880 - May 1891; Jan 1899 - July 1925; Dec. 1926 - Dec. 1950) at Watsonville, Calif.

LOCATION: Santa Cruz Co., Calif.; 4 mi. W of Watsonville; minor tributaries to Pacific Ocean.

AREA: 10.1 ac.

SHAPE: Roughly rectangular about 450 ft. wide by 1350 ft. long.

SLOPES: 5% is in 9-16% class; 10% in 16-31%; 85% in 31+%. Aspect E-SE.

SOILS: Alluvial; topsoil - coarse textured, weak granular structure, deep to moderately deep (22-48 in. av. 31 in.); subsoil - very compact gravelly sandy loam of slow permeability; internal drainage - slow. Pleasanton gravelly sandy loam - 95%; Soquel sandy loam - 5%.

EROSION: 1 - 90%; 2 - 10%.

LAND CAPABILITY: III - 5%; VI - 10%; VII - 85%.

SURFACE DRAINAGE: Good; principal waterway - 1350 ft.; drainage system consists of one well defined channel about 750 ft. long.

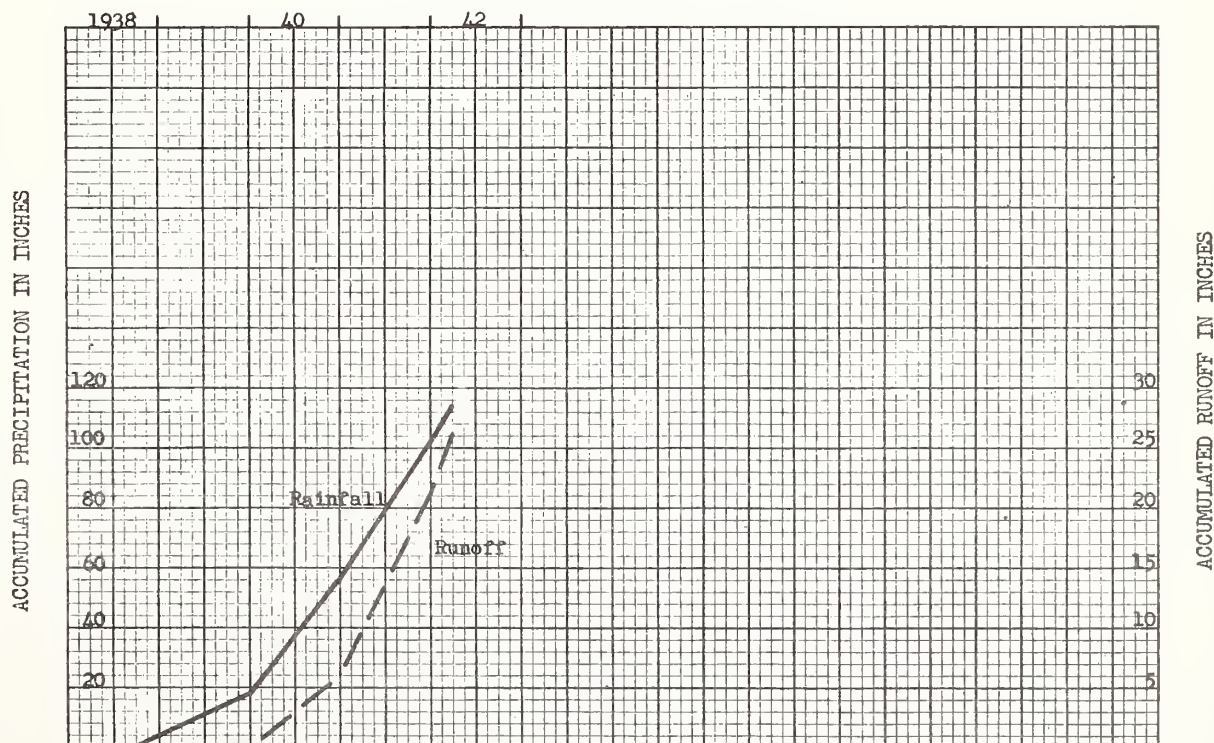
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - concrete, V-notch, broad crested weir, 6 hr. chart, 12 hr. chart after March 1943; precipitation - two recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 6.1 ac. predominately brushland; 3.5 ac. predominately woodland; 0.3 ac. cleared pasture; 0.2 ac. cleared for construction of weir and stilling pond in native grass.

GENERALLY REPRESENTS: Woodland and brush covered areas in the coastal section of the San Francisco Bay Area with similar soil and topography.

#### ACCUMULATED PRECIPITATION AND RUNOFF





**MONTHLY PRECIPITATION AND RUNOFF (Inches)**     Watsonville, Calif. Watershed W-4

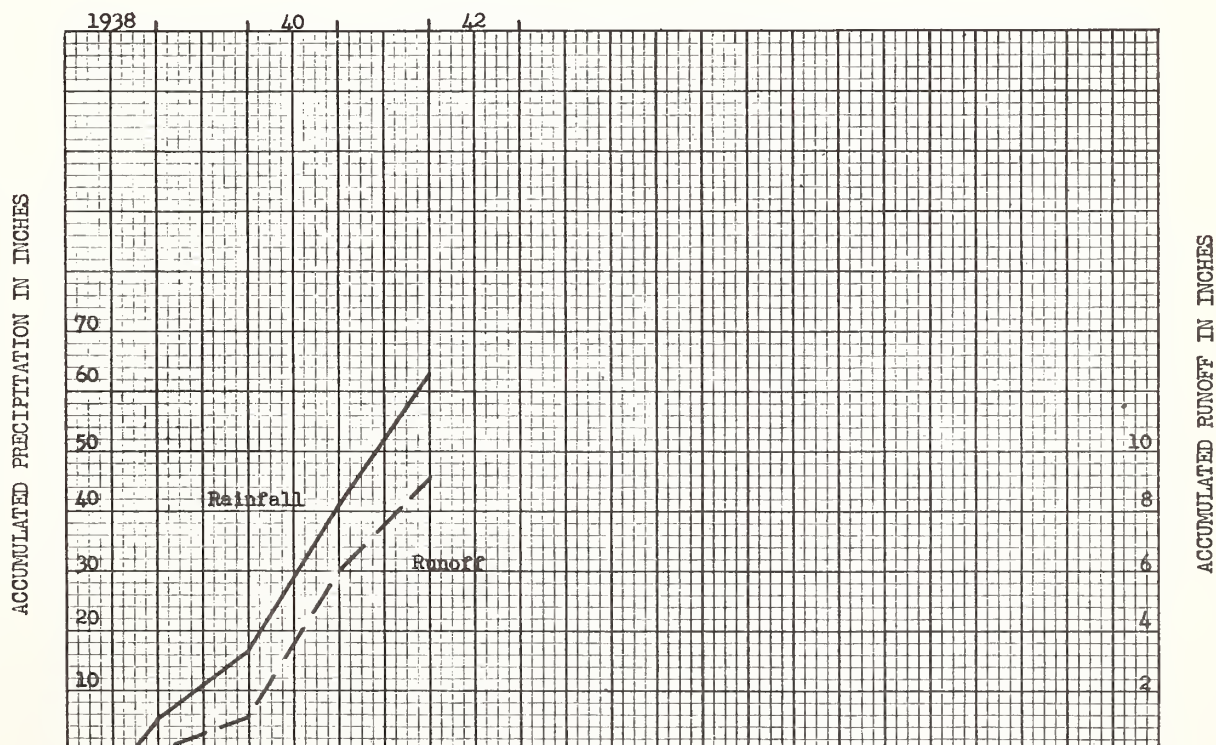
Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P										1.72	1.35	0.93	4.00
Q										0	0	0	0
1939 P	3.79	2.31	3.96	0.37	1.15	0	0	0	0.41	.60	.40	.93	13.92
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1940 P	13.26	8.60	5.48	.47	.78	0	.15	.16	.27	1.28	.58	8.48	39.51
Q	.55	3.09	1.73	.73	0	0	0	0	0	0	0	0	6.10
1941 P	8.90	10.24	6.57	5.39	1.34	0	0	0	0	.82	1.22	10.35	44.83
Q	2.99	5.19	2.70	4.19	0	0	0	0	0	0	0	0	15.07
1942 P	4.62	4.94	3.03	2.87	0	0	0	0	0	1.03	3.77	4.09	15.46
Q	1.02	3.82	.07	.03									4.94
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** Av. P	8.65	7.05	5.34	2.08	1.09	0	.05	.05	.23	.90	.73	6.59	32.76
** Av. Q	1.18	2.76	1.48	1.64	0	0	0	0	0	0	0	0	7.06
Normal P	4.01	3.64	3.31	1.27	.61	.12	.01	.02	.25	.96	2.01	4.40	20.61

**Notes:** \*\*Does not include part-year amounts for 1938 and 1942. Quality of records: P - fair; Q - fair  
 Normal P based on 61-yr. record (Oct 1880 - May 1891; Jan. 1899 - July 1925; Dec. 1926 - Dec. 1950)  
 at Watsonville, Calif.

5-56

EMMETT, IDAHO Watershed W-1LOCATION: Gem Co., Idaho; 3 mi. NE. of Sweet; Columbia River Basin.AREA: 219.4 ac.SHAPE: Roughly rectangular, about 1,300 ft. wide by 7,600 ft. long.SLOPES: 77% is in 0-30% class; 23% in 31-45%. Aspect - NW.SOILS: Residual; topsoil - medium textured, moderately fine granular structure, very shallow to moderately deep (4-10 in., av. 7 in.); subsoil - fine textured, coarse granular structure, very plastic and sticky wet, hard dry, moderately deep to deep with slow permeability, basaltic bedrock 10-32 in.; internal drainage - slow; Scab land (Tripod) - 10%; Rough stony land (Gem) - 90%.EROSION: 2 - 90%; 3 - 10%.LAND CAPABILITY: VI - 63%; VII - 37%.SURFACE DRAINAGE: Good; principal waterway - 8,500 ft.; drainage system consists of one long, fairly well defined channel.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - precalibrated, concrete weir with 3:1 side slopes; precipitation - 3 recording gages with standard Weather Bureau check gages.WATERSHED CONDITIONS: Watershed consists entirely of range land.GENERALLY REPRESENTS: Range lands with soils of basaltic origin in scattered zones lying between the mountains and deserts in southern Idaho, southeastern Oregon, northern Nevada, and northwestern Utah in the Upper, Central, and Lower Snake River Plains, and Owyhee Plateau Area. Data from this watershed not applicable to areas with soil derived from wind and water deposited material.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Idaho University Agricultural Experiment Station

MONTHLY PRECIPITATION AND RUNOFF (Inches) Emmett, Idaho Watershed W-1

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P									*0.38	*1.60	*2.93	*0.82	5.73
Q									0	0	0	.01	.01
1939 P	*2.37	*1.90	*0.64	*0.40	*0.25	*0.29	*0.16	0	*1.30	*1.06	*.09	*2.63	11.09
Q	.01	0	1.13	.01	0	0	0	0	0	0	0	0	1.15
1940 P	*2.65	*5.39	*4.37	*1.54	*.51	*.34	*.15	0	*3.91	*1.95	*2.65	*1.06	24.52
Q	.14	1.98	1.69	.82	0	0	0	0	0	0	.09	.09	4.81
1941 P	2.19	2.09	1.12	2.03	2.62	3.68	.99	.66	.29	1.30	1.37	3.33	21.67
Q	*.92	1.03	.54	.32	.02	.10	0	0	0	0	0	.47	3.20
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**Av. P	2.40	3.13	2.04	1.32	1.13	1.44	.43	.22	1.83	1.44	1.37	2.34	19.09
**Av. Q	.36	1.00	1.05	.38	.01	.03	0	0	0	0	.03	.19	3.05
Normal P	1.42	1.26	1.23	1.04	1.08	1.00	.23	.20	.54	.91	1.38	1.48	11.77

Notes: \*Partially estimated from watershed W-2 which was considered to have approximately same amounts.  
 \*\*Does not include the part-year amounts for 1938. Station operated through 1943 but data not reported due to difficulties in interpreting records. Quality of records: P - 1938-1941, fair; 1941-1942, excellent; Q - excellent. Normal P based on 48-yr. record (1907 to 1954) at Emmett, Idaho.



5-56

EMMETT, IDAHO Watershed W-2

LOCATION: Boise Co., Idaho; 6 mi. NE. of Sweet; Columbia River Basin.

AREA: 69.4 ac.

SHAPE: Roughly fan-shaped, about 2,200 ft. long.

SLOPES: 100% is in 0-30% class.

SOILS: Residual; topsoil - medium textured granular structure, friable moist, hard dry, moderately deep (8-10 in., av. 9 in.); subsoil - moderately fine to fine textured with slow permeability, 20-26 in. to granite bedrock; internal drainage - slow; Brownlee loam - 36%; Rainey loam - 30%; Rough broken land Brownlee soil material - 34%.

EROSION: 1 - 69%; 2 - 31%.

LAND CAPABILITY: IV - 15%; VI - 85%.

SURFACE DRAINAGE: Good; principal waterway - 2,600 ft.; drainage system consists of one main channel forking into two secondary channels.

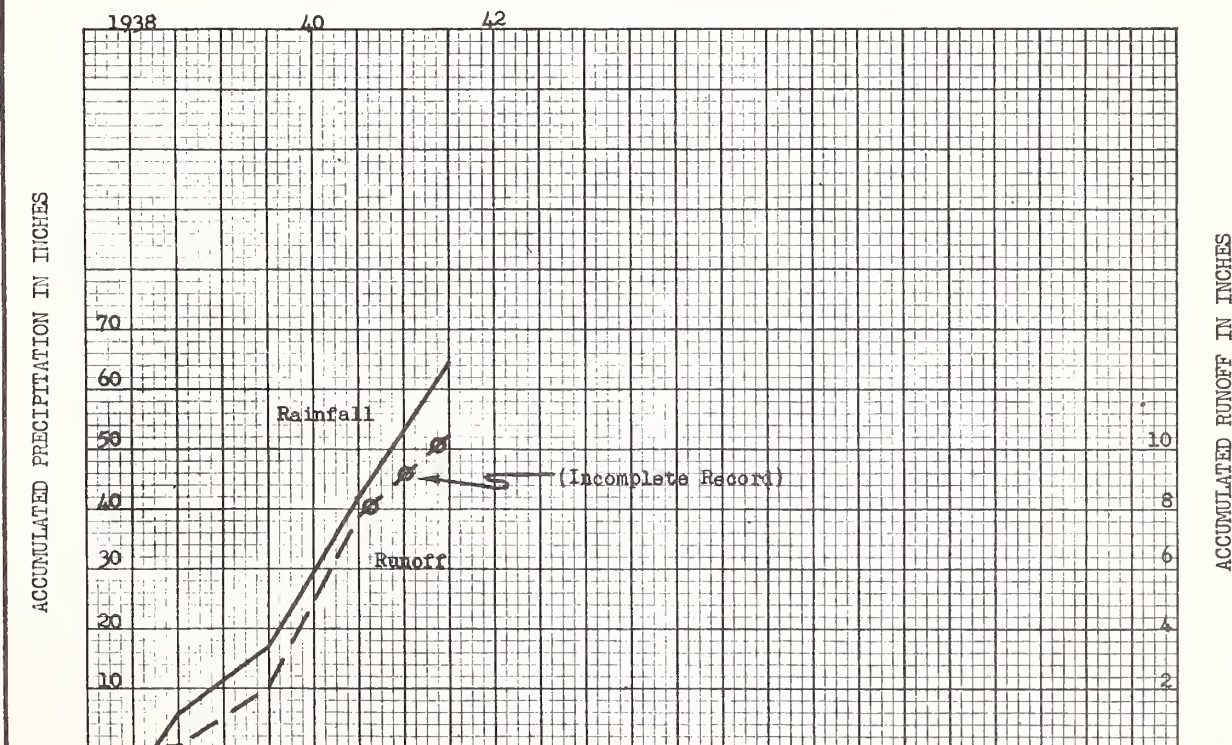
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - precalibrated, concrete, V-notch weir with 2:1 side slopes; precipitation - two recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: 85% is pasture and range land, 15% is cultivated in either grass and legumes or winter wheat.

GENERALLY REPRESENTS: Range lands with soils of granitic origin in scattered zones lying between the mountains and deserts in southern Idaho, southeastern Oregon, northern Nevada and northwestern Utah in the Upper, Central, and Lower Snake River Plains and Owyhee Plateau Area. Data from this watershed not applicable to areas with soils derived from wind and water deposited material.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Idaho University Agricultural Experiment Station

## Emmett, Idaho, Watershed W-2

**Notes:** \*Partially estimated. \*\*Does not include the part-year amounts for 1938. †Incomplete record, includes data to Dec. 17. Station operated through 1943, but data not reported because of difficulty in interpreting records. Quality of records: P - excellent; Q - excellent. Normal P based on 48-yr. record (1907 to 1954) at Emmett, Idaho.

LOCATION: Latah Co., Idaho; 4 mi. NE. of Moscow; Columbia River Basin.

AREA: 146.8 ac.

SHAPE: Roughly rectangular, about 1,900 ft. wide by 3,700 ft. long.

SLOPES: 15% is in 0-7 class; 58% in 7-20%; 19% in 20-30%; 8% in 30-45%. Aspect SW.

SOILS: Loessial, water laid; topsoil - medium to fine textured, weak structure, moderately deep to very deep (12-26 in., av. 19 in.); subsoil - moderately friable to dense limits permeability; internal drainage - medium to slow. Palouse silt - 60%; Thatuna silt - 22%; Palouse loam - 2%; Latok - 9%; Chambers silt - 7%.

EROSION: 1 - 47%; 2 - 40%; 3 - 13%.

LAND CAPABILITY: I - 9%; III - 62%; IV - 22%; VI - 7%.

SURFACE DRAINAGE: Good to poor; principal waterway - 3,600 ft.; drainage system consists of one main well defined channel which forks into four secondary well defined channels.

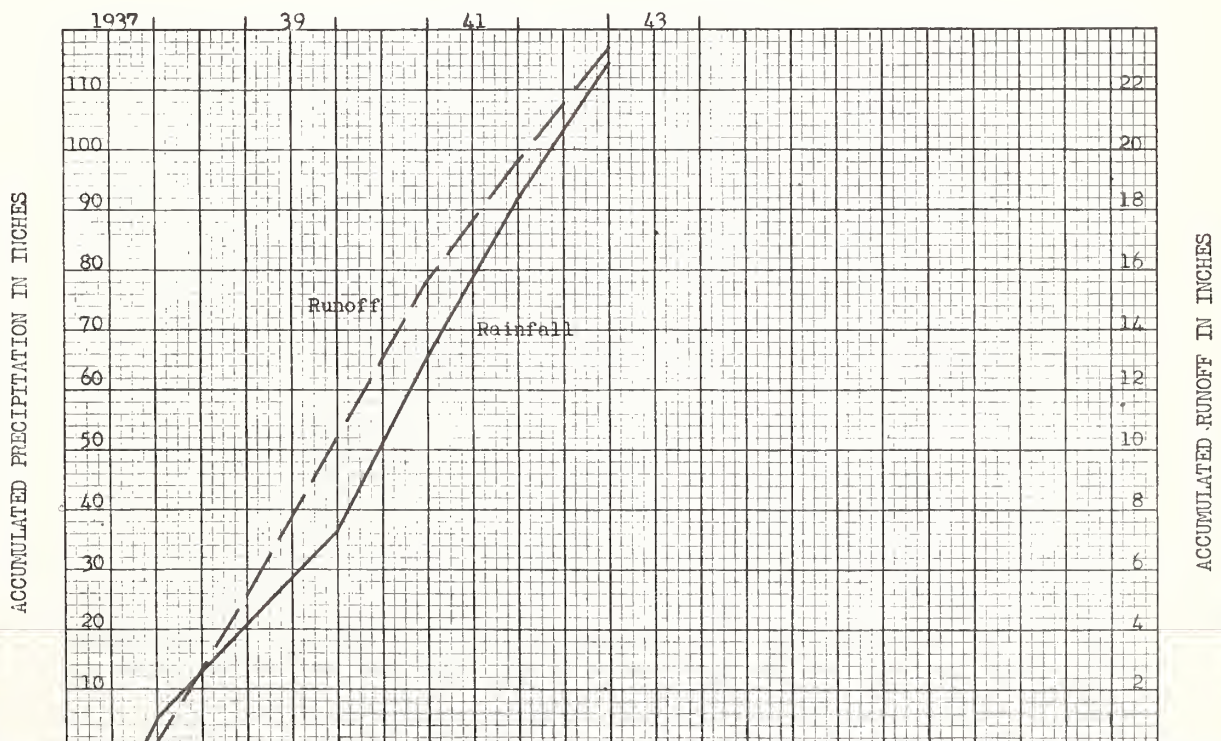
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - field calibrated, deep-notch, broad-crested weir with 5:1 side slopes; precipitation - recording gage with standard Weather Bureau check gage.

WATERSHED CONDITIONS: 1934 through 1939 - cultivated in rotation of peas and small grain; 1940 through 1942 - sweet clover introduced into the rotation. Watershed subdivided into fields ranging in size from 2.5 ac. to 28.0 ac.

GENERALLY REPRESENTS: Cultivated areas of northern Idaho, eastern Washington and north-central Oregon in the Northeastern Oregon Plateau and Palouse Area-Nez Perce Prairies and Blue Mountain Foot-hills. Data applicable with little modification to South Palouse River Area, but not applicable, without modification, to entire area.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and University of Idaho Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Moscow, Idaho, Watershed W-1**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P						0	0	0	0	0	0.99	4.17	5.16
Q						0	0	0	0	0	0	.16	.16
1938 P	1.72	1.66	1.85	1.50	1.52	1.17	.11	.18	.73	1.75	2.30	1.26	15.75
Q	1.21	1.64	1.67	.45	.01	0	0	0	0	0	0	.01	4.99
1939 P	1.43	3.42	2.13	.35	.85	.78	.78	0	.39	1.19	.28	4.14	15.74
Q	.01	.55	4.51	.16	0	0	0	0	0	0	0	.01	5.24
1940 P	1.71	4.71	3.07	2.18	.83	.50	1.70	0	3.82	4.46	3.00	2.87	28.85
Q	.06	1.78	1.51	.34	.02	0	0	0	0	.03	.37	1.23	5.34
1941 P	2.09	1.21	.80	2.35	4.46	3.64	.33	.84	2.76	1.20	2.81	3.82	26.31
Q	2.08	.68	.19	.22	.20	.05	0	0	0	0	.01	.57	4.00
1942 P	1.13	1.30	1.41	1.58	2.89	2.26	.86	.04	.51	2.16	4.51	4.08	22.73
Q	.31	1.09	.86	.06	.03	0	0	0	0	0	.01	1.27	3.63
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** Av. P	1.62	2.46	1.85	1.59	2.11	1.67	.76	.21	1.64	2.15	2.58	3.23	21.87
** Av. Q	.73	1.15	1.75	.25	.05	.01	0	0	0	.01	.08	.62	4.65
Normal P	2.84	2.14	2.11	1.58	1.88	1.53	.57	.62	1.26	1.71	2.82	2.82	21.88

**Notes:** \*\*Does not include part-year amounts for 1937. Quality of records: P - excellent; Q - excellent. Months of Jan., Feb., March, April, May, Nov., and Dec. include snow and snowmelt. Normal P based on 63-yr. record (1892 to 1954) at Moscow, Idaho.

LOCATION: Latah Co., Idaho; 3 mi. N. of Moscow; Columbia River Basin.

AREA: 177.9 ac.

SHAPE: Roughly rectangular, about 2,200 ft. wide by 3,800 ft. long.

SLOPES: 10% is in 0-7% class; 72% in 7-20%; 18% in 20-30%. Aspect SW.

SOILS: Loessial water laid; topsoil - medium to fine textured, weak structure, moderately deep to very deep (12-26 in., av. 19 in.); subsoil - moderately friable to dense limits permeability; internal drainage - medium to slow. Palouse silt - 54%; Thatuna silt - 33%; Latok silt - 10%; Chambers silt - 3%.

EROSION: 2 - 20%; 3 - 60%; 4 - 20%.

LAND CAPABILITY: I - 10%; III - 72%; IV - 15%; VI - 3%

SURFACE DRAINAGE: Good; principal waterway - 4,500 ft.; drainage system consists of one main well defined channel which forks into six secondary well defined channels.

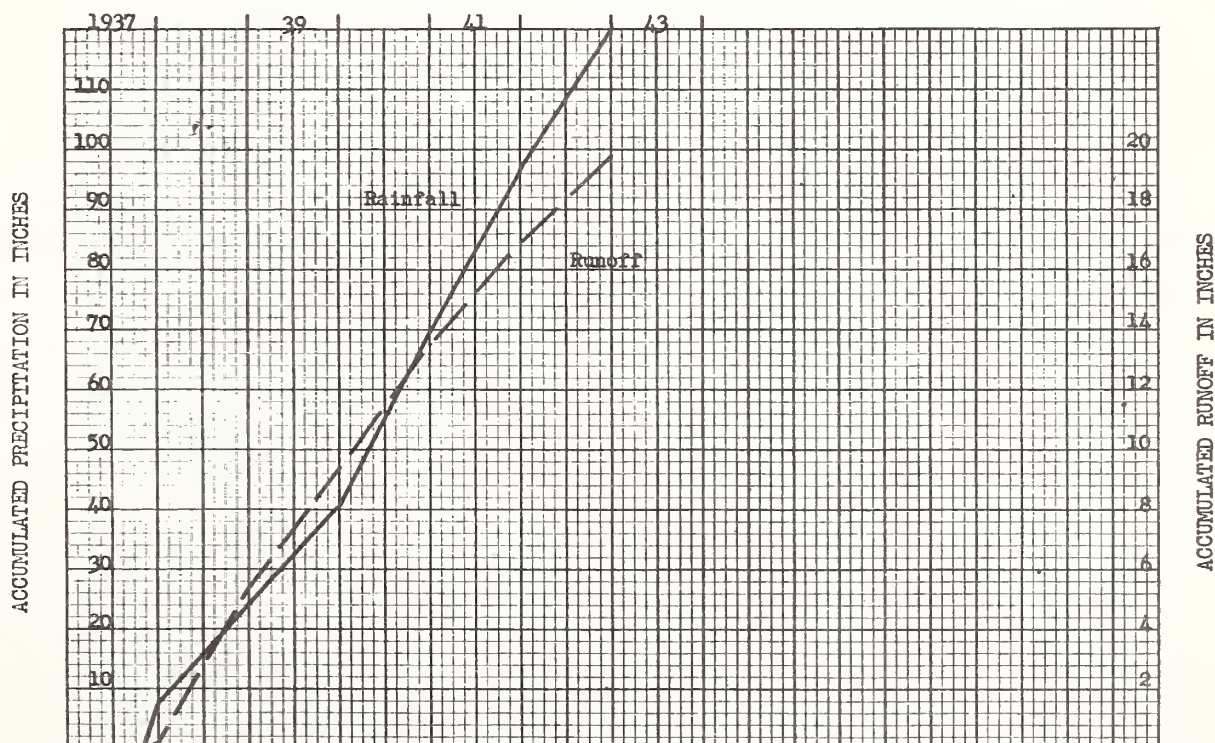
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - field calibrated, deep-notch, broad-crested, concrete weir with 5:1 side slopes; precipitation - recording gage with standard Weather Bureau check gage.

WATERSHED CONDITIONS: 13 ac. planted in permanent grass or alfalfa; remainder cultivated in no definite rotation of wheat, oats, sweet clover, and peas.

GENERALLY REPRESENTS: Cultivated areas of northern Idaho, eastern Washington and north-central Oregon in the Northeastern Oregon Plateau and Palouse Area-Nez Perce Prairies and Blue Mountain Foothills. Data applicable with little modification to South Palouse River Area, but not applicable, without modification, to entire area.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Moscow, Idaho, Watershed W-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1937 P											3.64	*4.19	7.83
Q											0	.16	.16
1938 P	*1.76	*1.66	*2.23	*1.55	*1.65	*1.39	*.11	*.18	*.73	*1.75	*2.30	*1.26	16.57
Q	1.22	1.72	1.93	.32	0	0	0	0	0	0	0	.02	5.21
1939 P	*1.43	*3.42	*2.13	*.35	*.84	*.86	*.78	0	*.39	*1.19	*.28	*4.36	16.03
Q	0	.09	3.83	.11	0	0	0	0	0	0	0	0	4.03
1940 P	*1.71	*4.83	*2.96	*2.39	*.73	*.50	*1.70	0	*4.11	*4.46	*3.00	*2.87	29.26
Q	0	1.52	1.30	.27	0	0	0	0	0	0	.15	.87	4.11
1941 P	2.28	1.42	.95	2.44	4.96	3.28	.31	.66	2.68	1.34	2.94	3.89	27.15
Q	1.80	.50	.20	.24	.18	.02	0	0	0	0	0	.46	3.40
1942 P	1.27	1.43	1.59	1.49	3.04	2.40	.84	.05	.47	2.39	4.49	4.19	23.65
Q	.33	1.01	.85	.06	.05	0	0	0	0	0	0	.57	2.87
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** Av. P	1.69	2.55	1.97	1.64	2.24	1.69	.75	.18	1.68	2.23	2.60	3.31	22.53
** Av. Q	.67	.97	1.62	.20	.05	0	0	0	0	0	.03	.38	3.92
Normal P	2.84	2.14	2.11	1.58	1.88	1.53	.57	.62	1.26	1.71	2.82	<del>2.82</del>	21.88

**Notes:** \*Partially estimated from gage on watershed W-1 which has approximately the same amounts and intensities. \*\*Does not include part-year amounts for 1937. Quality of records: P - 1937-1940 fair; 1941-1942 excellent. Q - excellent. Months of Jan., Feb., March, April, Nov., and Dec. include snow and snowmelt. Normal P based on 63-yr. record (1892 to 1954) at Moscow, Idaho.



LOCATION: Washington Co., Oreg.;  $4\frac{1}{2}$  mi. NE of Newberg; Willamette River Basin.

AREA: 13.2 ac.

SHAPE: Roughly triangular, about 1200 ft. long by 800 ft. at the base.

SLOPES: 65% is in 5-12% class; 32% in 12-20%; 3% in 20-30%. Aspect NW.

SOILS: Developed on very deep deposition of unknown origin; topsoil - medium textured, moderately fine granular structure, many iron concretions, depth 7-14 inches (av. 11 inches); subsoil - fine textured moderately slow permeability down to approx. 30 inches where a very weakly cemented pan may retard permeability to slow; internal drainage - very slow. Goble (tentative series) silt loam.

EROSION: 1 - 68%; 2 - 32%

LAND CAPABILITY: III - 65%; IV - 32%; VI - 3%.

SURFACE DRAINAGE: Good; principal waterway - 1200 ft.; drainage system consists of two short, fairly well defined channels.

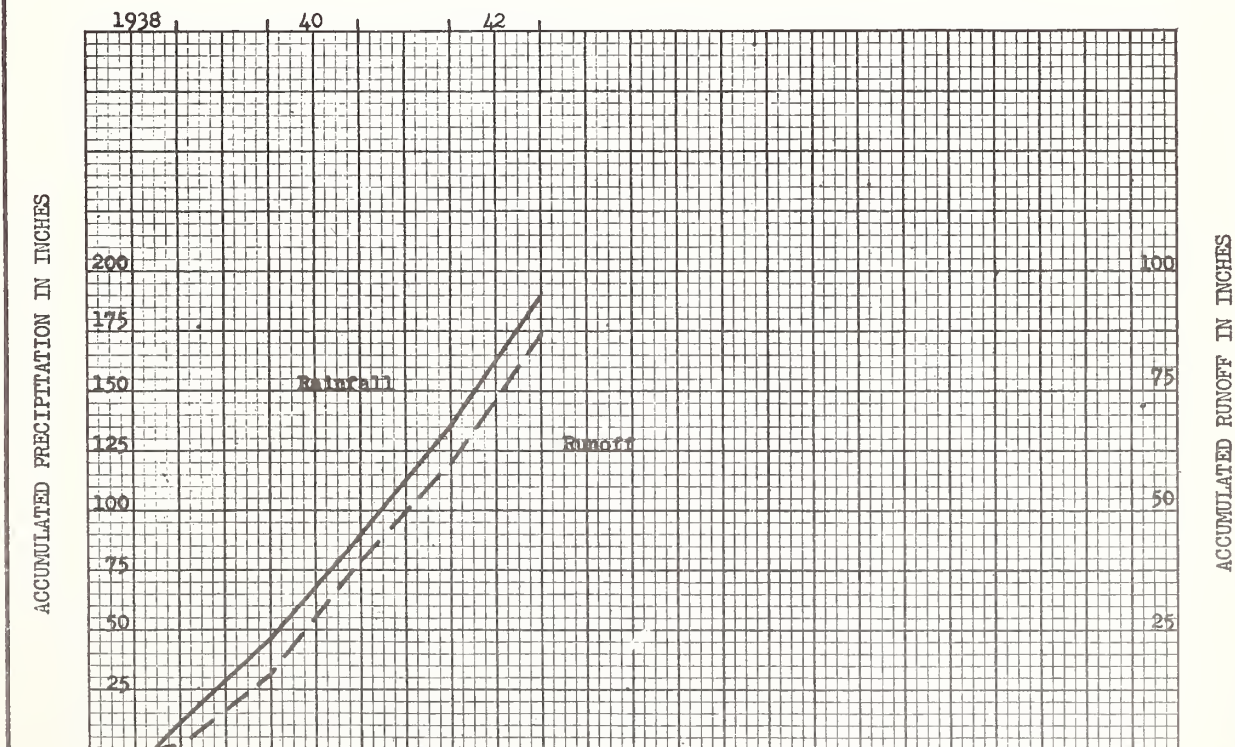
CHARACTER OF FLOW: Spring-fed intermittent, continuous.

INSTRUMENTATION: Runoff-precalibrated, broadcrested, concrete, V-notch weir with 2:1 side slopes; precipitation - recording gage with standard Weather Bureau check gage.

WATERSHED CONDITIONS: 15-yr.-old walnut orchard with cover crop over winter period, cultivated during spring and summer.

GENERALLY REPRESENTS: Orchard areas below 1500 ft. MSL in Puget Sound Area, Coast Range and Valleys of Washington and Oregon, and Willamette Valley.

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oregon State Agricultural Experiment Station

Newberg, Oregon, Watershed W-1

<div>Month Year</div>		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P Q								0	1.18 .04	2.75 .03	4.64 .03	4.13 .51	12.70 .61
1939	P Q	5.76 3.31	5.92 7.31	2.73 2.56	0.45 .60	1.38 .45	1.78 .22	0.55 .09	1.21 0	.40 0	2.73 .02	1.42 .02	9.94 .86	34.27 15.44
1940	P Q	3.31 2.76	11.91 9.23	5.36 4.41	2.32 1.94	1.80 1.17	0 .50	.35 .15	0 .05	2.55 .04	4.62 .07	5.43 .67	5.51 2.43	43.16 23.42
1941	P Q	6.38 5.61	1.63 1.94	2.16 1.32	1.88 .95	4.32 .73	1.20 .37	0 .21	1.76 .11	3.37 .43	3.60 .24	6.76 .54	12.87 8.09	45.93 20.54
1942	P Q	5.44 3.35	4.18 4.16	2.34 .51	2.38 .50	3.55 .50	2.29 .49	1.03 .50	.02 .49	0 .23	3.94 .22	16.83 5.83	13.42 10.38	55.42 27.16
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** Av. P		5.22	5.91	3.15	1.76	2.76	1.32	.48	.75	1.58	3.72	7.61	10.44	44.70
** Av. Q		3.76	5.66	2.20	1.00	.71	.40	.24	.16	.18	.14	1.76	5.44	21.65
Normal	P	7.02	5.42	4.41	2.57	1.85	1.32	.40	.49	1.80	3.18	7.28	7.37	43.11

Notes: \*\*Does not include the part-year amounts for 1938. Quality of records: P - excellent; Q - excellent. Months of Jan., Feb., and Dec. include snow and snowmelt. Normal P based on 67-yr. record (1888-1954) at McMinnville, Oregon.

3-56

## NEWBERG, OREGON Watershed W-2

LOCATION: Yamhill Co., Oreg.; 3 mi. NW of Newberg; Willamette River Basin.

AREA: 21.6 ac.

SHAPE: Roughly triangular, about 1450 ft. long by 1150 ft. at the base.

SLOPES: 100% is in 30% and over class. Aspect S.

SOILS: Residual; topsoil - medium textured, moderate very fine subangular blocky structure, depth 9-12 inches (av. 11 inches); subsoil - fine textured, moderately slow permeability, solum underlain by shale at depths over 36 inches; internal drainage - slow. Yamhill (tentative series) clay loam.

EROSION: 1 - 100%.

LAND CAPABILITY: VII - 100%

SURFACE DRAINAGE: Good; principal waterway - 1450 ft.; drainage system consists of two short, fairly well defined channels.

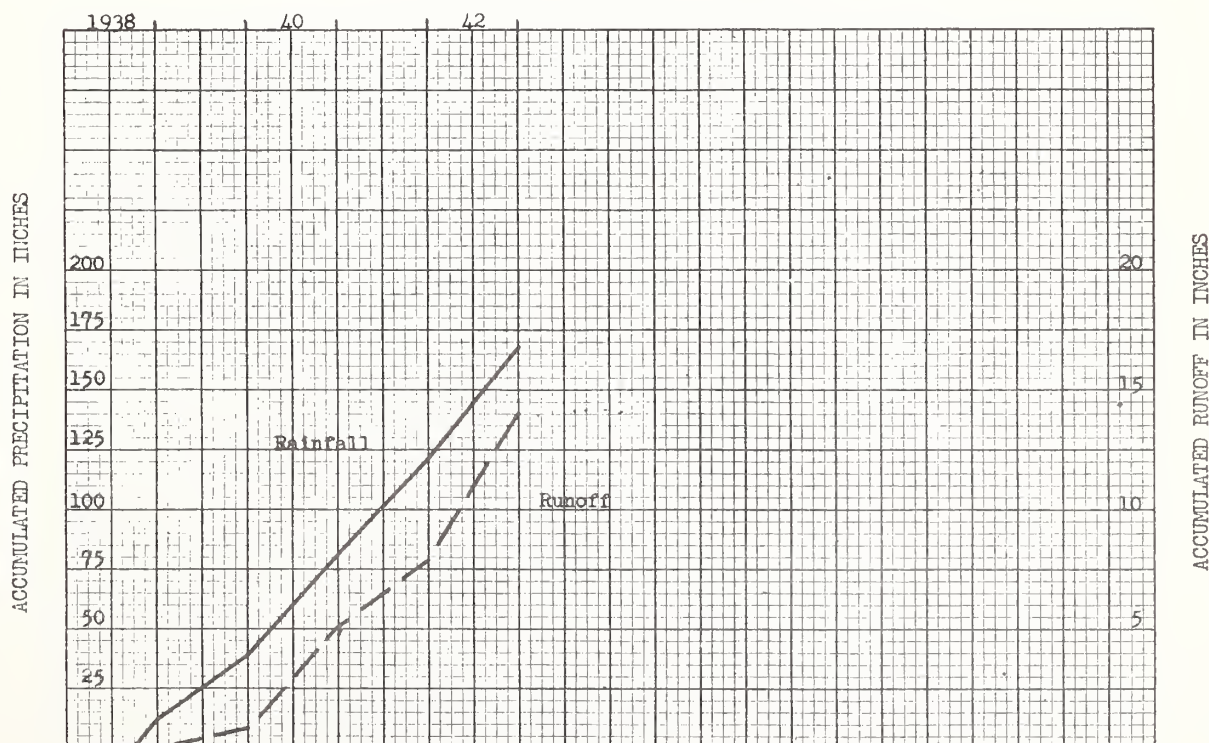
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - precalibrated, broadcrested, concrete, V-notch weir with 2:1 side slopes; precipitation - recording gage with standard Weather Bureau check gage.

WATERSHED CONDITIONS: Second growth woodland with dense growth of underbrush. Logged at one time but not cleared. Fairly deep "duff" present. Few trees have attained a diameter of three feet but average size of coniferous trees about 8-14 inches. Deciduous trees (mostly oak and maple) smaller in size. Small amount of grazing has been practiced but not enough to keep underbrush down.

GENERALLY REPRESENTS: Forested areas below 1500 ft. MSL in Puget Sound Area, Coast Range and Valleys of Washington and Oregon, and Willamette Valley.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oregon State Agricultural Experiment Station



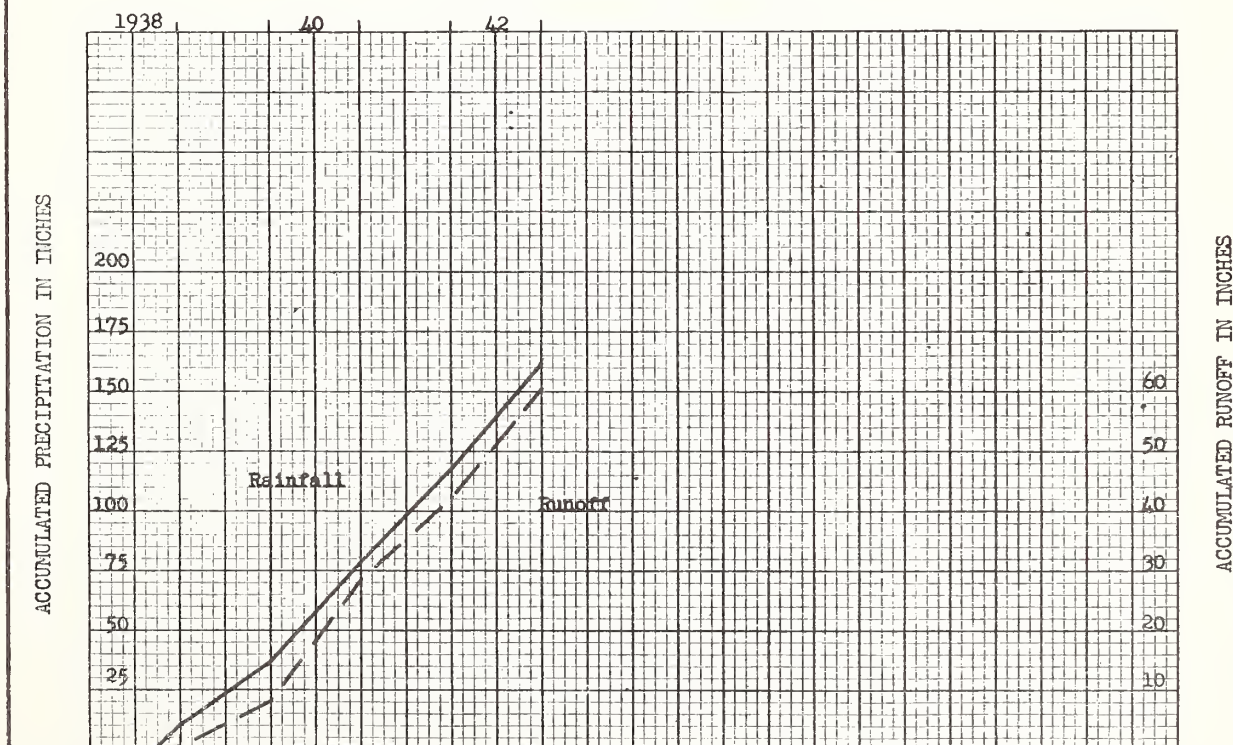
**MONTHLY PRECIPITATION AND RUNOFF (Inches) Newberg, Oregon Watershed W-2**

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P									*2.45	*2.39	*3.85	*3.63	12.32
	Q								0	0	0	0	0	0
1939	P	*4.38	*4.51	*1.56	*0.22	*0.86	*0.88	*0.28	*1.00	*.24	*2.25	*1.41	*9.13	26.72
	Q	0	.83	0	0	0	0	0	0	0	0	0	.01	.84
1940	P	*3.38	11.35	5.21	*2.39	*1.69	0	*.39	*.05	*2.98	*4.57	*4.68	*5.60	42.29
	Q	.15	2.99	.83	.08	.01	0	0	0	0	0	0	.17	4.23
1941	P	6.34	1.86	1.64	1.66	3.87	.99	0	1.72	2.87	2.85	5.82	9.95	39.57
	Q	.63	.01	0	0	0	0	0	0	0	0	0	2.16	2.80
1942	P	5.14	3.55	1.56	1.81	3.05	1.76	1.06	.10	0	2.55	14.60	11.32	46.50
	Q	.24	.92	0	0	0	0	0	0	0	0	1.44	3.50	6.10
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3-56

NEWBERG, OREGON Watershed W-3LOCATION: Yamhill Co., Oreg.;  $4\frac{1}{2}$  mi. NW of Newberg; Willamette River Basin.AREA: 12.8 ac.SHAPE: Roughly rectangular, about 600 ft. wide by 900 ft. long.SLOPES: 88% is in 5-12% class; 12% in 12-20%. Aspect SW.SOILS: Residual; topsoil - medium textured very fine subangular blocky structure, depth 7-11 inches (av. 9 inches); subsoil - fine textured, moderately slow permeability, lower portion contains a few reddish brown mottles, solum underlain by shale at depths over 36 inches; internal drainage - slow. Yamhill (tentative series) clay loam.EROSION: 1 - 75%; 2 - 25%.LAND CAPABILITY: III - 88%; IV - 12%.SURFACE DRAINAGE: Good; principal waterway about 750 ft. long; drainage system consists of one grassed waterway about 500 ft. long.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - precalibrated, broadcrested, concrete, V-notch weir with 2:1 side slopes; precipitation - recording gage with standard Weather Bureau check gage.WATERSHED CONDITIONS: 12-yr.-old walnut and filbert orchard with cover crop over winter period, cultivated during spring and summer. Orchard terraced in August, 1938.GENERALLY REPRESENTS: Orchard areas with winter cover crop, below 1500 ft. MSL in Puget Sound Area, Coast Range and Valleys of Washington and Oregon, and Willamette Valley.

## ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative research project of USDA and Oregon State Agricultural Experiment Station

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**      Newberg, Oregon      Watershed W-3

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938 P									0.71	2.39	3.85	3.57	10.52
Q								0	0	0	.08	.39	.47
1939 P	4.38	4.41	1.48	0.22	0.86	0.88	0.28	1.00	.26	2.23	1.41	9.39	26.80
Q	1.83	4.03	.36	0	0	0	0	0	0	0	0	1.73	7.95
1940 P	3.33	11.43	4.84	2.09	1.69	0	.39	.05	2.98	4.57	4.65	5.49	41.51
Q	2.04	9.83	3.01	.49	.28	0	0	0	0	.01	.72	3.66	20.04
1941 P	6.30	1.98	1.58	1.73	3.63	1.24	0	1.42	2.37	2.84	5.95	10.29	39.33
Q	4.70	.71	.23	0	0	0	0	0	0	0	.40	7.69	13.73
1942 P	5.21	3.44	1.55	1.79	2.75	1.65	.97	.10	0	2.54	13.98	11.06	45.04
Q	3.13	2.86	.16	0	0	0	0	0	0	0	4.93	7.19	18.27
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**Av. P	4.80	5.32	2.36	1.46	2.23	.94	.41	.64	1.40	3.04	6.50	9.06	38.16
**Av. Q	2.92	4.36	.94	.12	.07	0	0	0	0	T	1.51	5.07	14.99
Normal P	7.02	5.42	4.41	2.57	1.85	1.32	.40	.49	1.80	3.18	7.28	7.37	43.11

**Notes:** \*\*Does not include part-year amounts for 1938. Quality of records: P - excellent, Q - excellent. Months of Jan., Feb., and Dec. include snow and snowmelt. Normal P based on 67-yr. record (1888-1954) at McMinnville, Oregon.



LOCATION: Yamhill Co., Oreg.; 5 mi. NW of Newberg; Willamette River Basin.

AREA: 6.20 ac.

SHAPE: Roughly rectangular, about 400 ft. wide by 700 ft. long.

SLOPES: 70% is in 5-12% class; 30% in 12-30%. Aspect S.

SOILS: Residual; topsoil - medium textured, weak very fine subangular blocky structure, depth 7-10 inches (av. 9 inches); subsoil - fine textured, moderately slow permeability, solum underlain by sandstone at depths over 36 inches; internal drainage - slow. Yamhill (tentative series) loam.

EROSION: 1 - 60%; 2 - 40%

LAND CAPABILITY: III - 70%; IV - 30%.

SURFACE DRAINAGE: Good; principal waterway about 850 ft. long; drainage system consists of one fairly well defined channel about 550 ft. long.

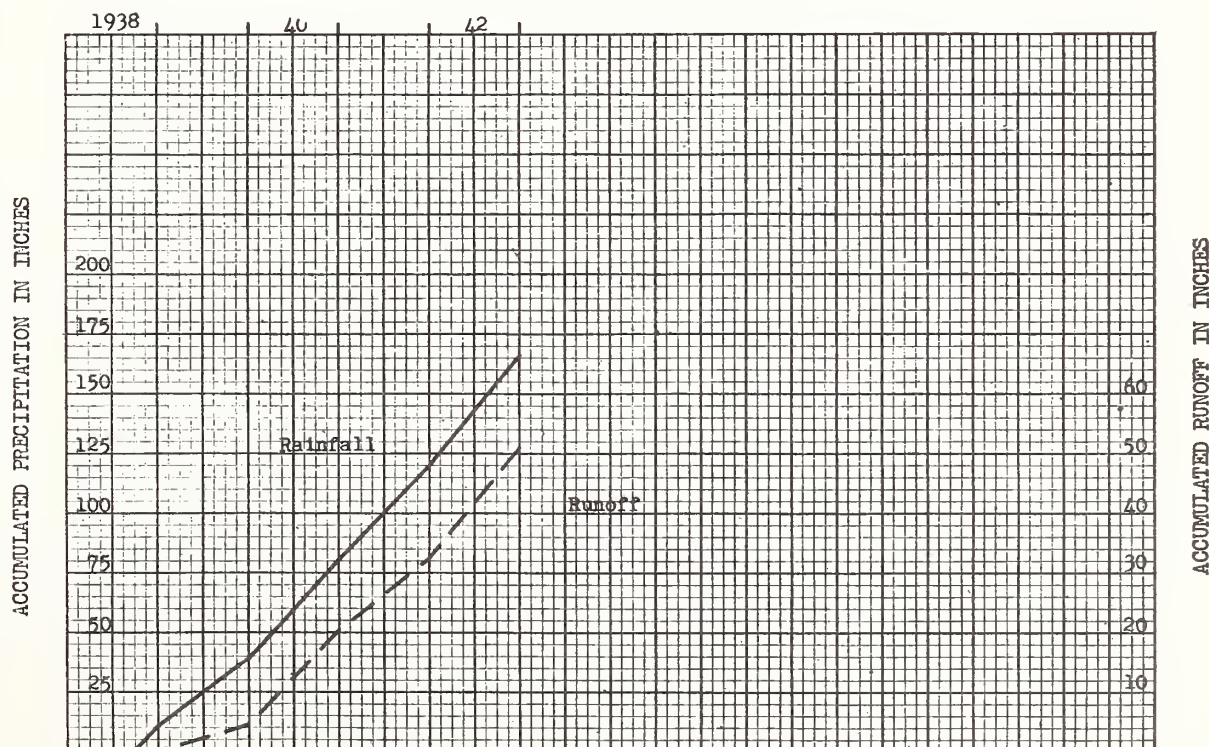
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - precalibrated, broadcrested, concrete, V-notch weir with 2:1 side slopes; precipitation - recording gage with standard Weather Bureau check gage.

WATERSHED CONDITIONS: 20-yr.-old prune orchard. Prior to summer of 1941 cultivated with no cover crop; after 1941 native cover allowed to grow and tillage practiced.

GENERALLY REPRESENTS: Orchard areas below 1500 ft. MSL in Puget Sound Area, Coast Range and Valleys of Washington and Oregon, and Willamette Valley.

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Newberg, Oregon Watershed W-4

Year	Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1938	P Q							0	0	*1.46 0	*2.39 0	*3.85 0	*3.57 0	11.27 0
1939	P Q	*4.38 .46	*3.91 3.57	*1.56 .29	*0.25 0	*0.86 0	*0.88 0	*0.28 0	*1.00 0	*.26 0	*2.23 0	*1.41 0	*10.57 .52	27.59 4.84
1940	P Q	*3.42 1.22	11.93 8.35	4.89 3.04	*2.28 .29	*1.69 .25	0 0	*.39 0	*.05 0	*2.98 0	*4.57 0	*4.67 .01	*5.38 2.49	42.25 15.65
1941	P Q	6.75 4.76	1.83 .34	1.48 .06	1.55 0	3.62 0	1.24 0	0 0	1.32 0	2.47 C	2.67 C	5.79 .01	*10.51 6.73	39.23 11.90
1942	P Q	*5.39 1.93	3.26 2.32	1.45 0	2.11 0	2.63 0	1.53 C	1.02 0	.15 0	.03 0	2.63 0	15.00 5.59	11.23 8.50	46.43 18.34
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** Av. P		4.98	5.23	2.34	1.55	2.20	.91	.42	.63	1.44	3.02	6.72	9.42	38.86
** Av. Q		2.09	3.64	.85	.07	.06	0	0	0	0	0	1.40	4.56	12.67
Normal P		7.02	5.42	4.41	2.57	1.85	1.32	.40	.49	1.80	3.18	7.28	7.37	43.11

**Notes:** \*Partially estimated using records from watershed W-3 which are of approximately the same amounts and intensities. \*\*Does not include part-year amounts for 1938. Quality of records: P - 1938-1940 fair, 1941-1942 excellent. Q - excellent. Months of Jan., Feb., and Dec. include snow and snowmelt. Normal P based on 67-yr. record (1888-1954) at McMinnville, Oregon.

## DAYTON, WASHINGTON Watershed W-1

LOCATION: Columbia Co., Wash.; 2½ mi. NE of Dayton; Columbia River Basin.

AREA: 19.2 ac.

SHAPE: Roughly rectangular, about 500 ft. wide by 1,700 ft. long.

SLOPES: 100% is in 15-25% class. Aspect SE.

SOILS: Loessial - some residual Basalt material; topsoil - dark brown granular silt loam 6-10 in. in depth underlain by brown to yellowish brown friable silt loam about 12 in. thick; subsoil - yellowish brown friable to firm prismatic silt loam 30-40 in. thick; bedrock encountered 30-48 in. from surface internal drainage - medium. Mapped as inclusion with Athena silt loam, but affected gravitational basaltic material.

EROSION: 2 - 83%; 3 - 17%.

LAND CAPABILITY: III - 100%.

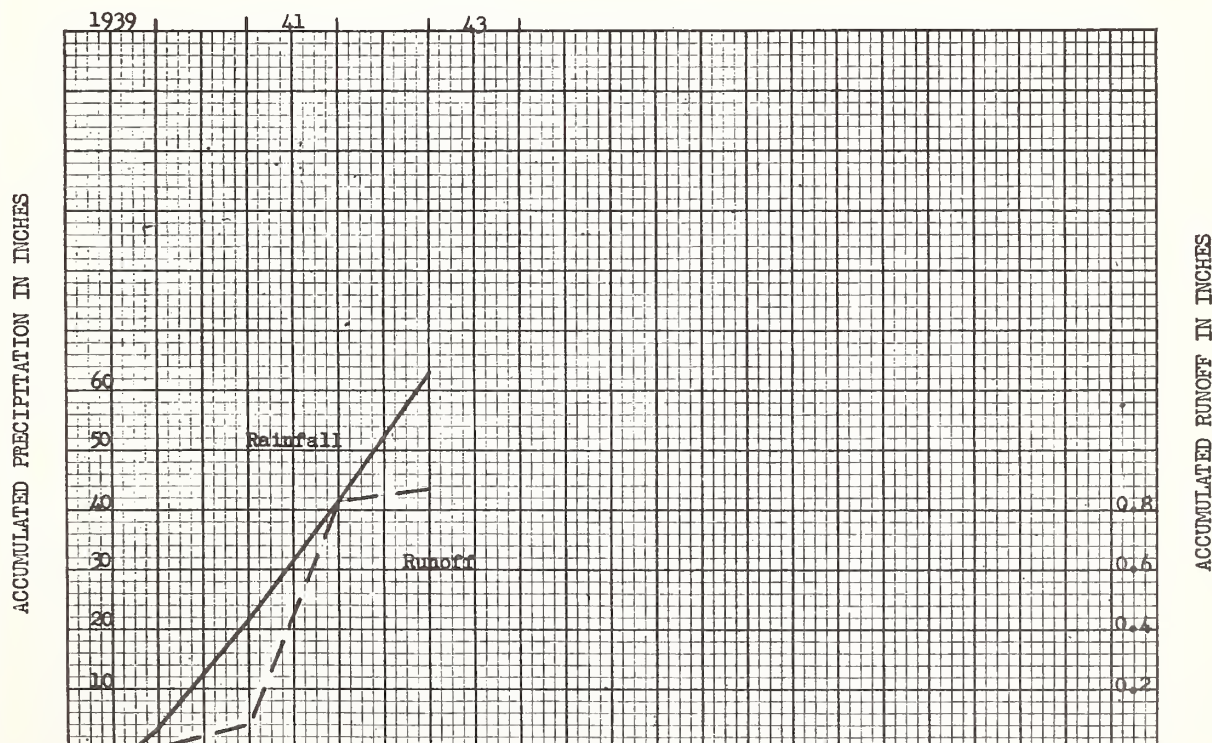
SURFACE DRAINAGE: Good; principal waterway - 1700 ft.; area is portion of natural watershed between two terrace channels with principal waterway being the terrace channel on lower border of watershed.

CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - broadcrested concrete weir with 5:1 side slopes; precipitation - two recording gages with standard Weather Bureau check gages.

WATERSHED CONDITIONS: Farmed on contour; 1938 - winter wheat, 1939 - fallow, 1940 - spring wheat, 1941 - winter wheat, 1942 - fallow.

GENERALLY REPRESENTS: Cultivated areas in southeastern Washington and northeastern Idaho having long, steep slopes on deep, chernozemic, loessial soils. These areas include Baker-Grande Ronde-Wallowa Valleys (limited to eastern edge of Baker-Grande Ronde Valleys and a limited part of Wallowa Valley); Palouse Area-Nez Perce Prairies-Blue Mountain Foothills (limited to central parts of Garfield and Columbia Counties and the eastern parts of Walla Walla, Whitman and Spokane Counties in Washington); Northern Columbia Basin Plateau (limited to northern hills of Lincoln County, Washington.)





**MONTHLY PRECIPITATION AND RUNOFF (Inches) Dayton, Wash., Watershed W-1**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1939 P Q								0.00	0.00	0.98 0	0.19 0	2.37 0	3.54 0
1940 P Q	1.58 0	3.09 .02	2.40 .06	1.36 0	0.41 0	0.34 0	0.81 0	0 0	1.57 0	2.46 0	2.83 0	1.26 0	18.11 .08
1941 P Q	1.14 .01	1.24 0	.61 0	.80 0	3.64 0	3.15 0	*1.41 .28	.32 0	1.74 0	1.92 0	*2.28 * .10	2.03 * .36	20.28 .75
1942 P Q	1.32 .02	.83 0	1.02 0	.97 0	3.46 0	3.18 .02	.68 0	.10 0	.17 0	1.52 0	3.86 0	*4.08 0	21.19 .04
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** Av. P ** Av. Q	1.35 .01	1.72 .01	1.34 .02	1.64 0	2.50 0	2.22 .01	.97 .09	.14 0	1.16 0	1.97 0	2.99 .03	2.46 .12	19.96 .29
Normal P	2.58	2.30	2.25	1.64	1.58	1.30	.47	.46	.97	1.78	2.57	2.66	20.56

**Notes:** \*Partially estimated. \*\*Does not include part-year amounts for 1939. Quality of records:  
P - fair, Q - fair. Months of January, February, November, and December include snow and snowmelt.  
Normal P based on 76-yr. record (1879 to 1954) at Dayton, Washington.

LOCATION: Whitman Co., Wash. and Latah Co., Idaho; 2 mi. SE of Pullman; Palouse River, Snake River Basin.

AREA: 51,900 ac. (81.1 sq. mi.) SHAPE: Irregular, about 4 mi. average width and 20 mi. length.

SLOPES: 9% is in 0-3% class; 33% in 3-15%; 43% in 15-30%; 6% in 30-40%; 9% over 40%. Aspect W.

SOILS: Loessial; topsoil - medium texture, granular structure, 6-18 in. deep; subsoil - slightly finer texture than topsoil, 24-44 in. thick; substratum - slowly permeable clay under about 25% of the area, silt loam or silty clay loam under remainder. Internal drainage - medium to slow. Mostly Palouse silt loam and associated Athena silt loam, and Garfield silty clay loam.

EROSION: 1 - 50%; 2 - 47%; 3 - 3%.

LAND CAPABILITY: II - 38%; III - 40%; IV - 10%; VI - 5%; VII - 7%.

SURFACE DRAINAGE: Good; principal drainageway - 20 miles; drainage system is well defined.

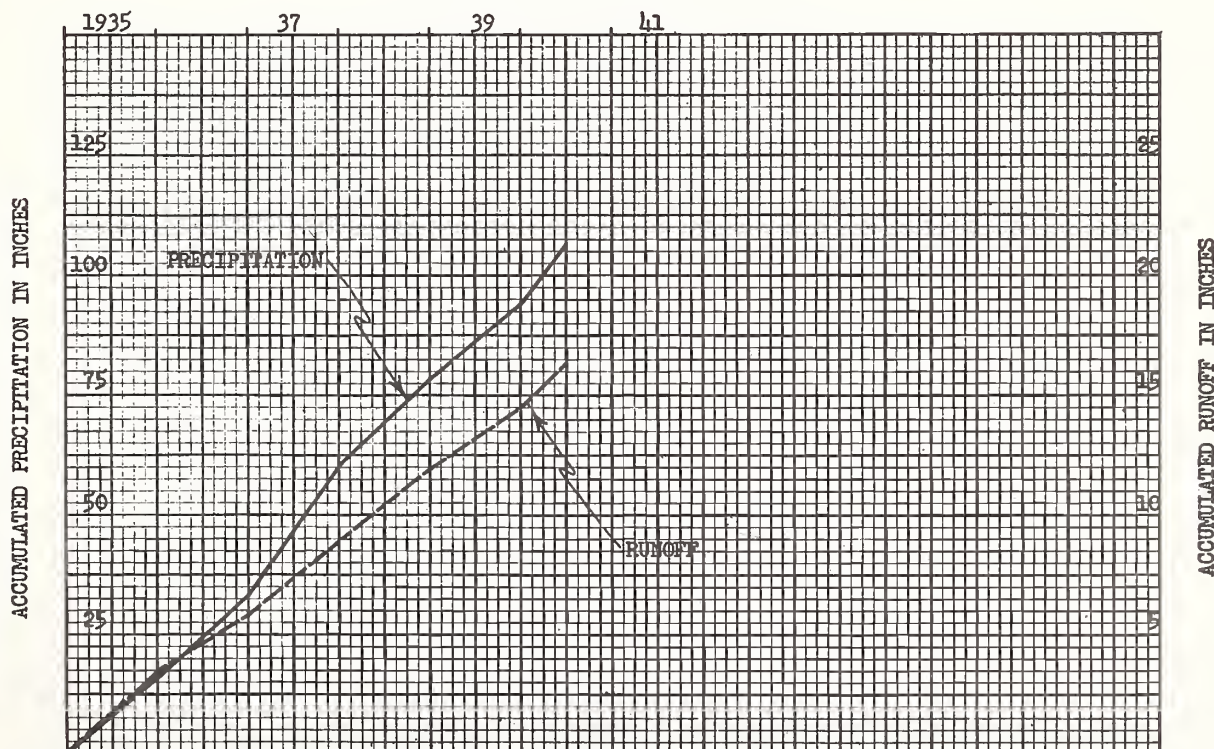
CHARACTER OF FLOW: Surface-fed intermittent, continuous. (Some flow from springs and seeps during spring and early summer.)

INSTRUMENTATION: Runoff - continuous record, modified Parshall flume with removable weir inserts for low flows, concrete control for high flows; precipitation - standard and recording raingages.

WATERSHED CONDITIONS: No significant change in land use during the period; cropland - 67%, pasture and range - 8%, permanent hayland - 10%, woodland - 11%, other - 4%. In 1934 the cropland included 45% clean tilled peas and fallow, 1% sweet clover, and 54% small grains, mostly winter wheat; area in sweet clover increased to 5% by 1940 with a decrease in peas and fallow; no other significant changes in cropping pattern. Residue management increased from 6000 ac. in 1934 to 25,600 ac. in 1940 with burning of residues almost eliminated. Two million sq. yds. of gullies sodded and 3,700 small gully control structures built during period.

GENERALLY REPRESENTS: Annual cropping areas of Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla Counties and Central Garfield and Columbia Counties in Washington and Western Latah County in Idaho.)

ACCUMULATED PRECIPITATION AND RUNOFF



**Pullman, Washington, South Fork of  
Palouse River above Paradise**

**MONTHLY PRECIPITATION AND RUNOFF (Inches)**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P Q										3.54 .02	2.82 .03	3.18 .18	9.54 .23
1935 P Q	3.00 .83	1.05 .46	3.16 .78	2.69 .98	0.29 .20	0.72 .04	0.46 .01	0.28 T	0.27 T	1.10 .01	.93 .01	2.70 .03	16.65 3.35
1936 P Q	5.36 .42	1.94 .43	1.78 1.22	.59 .37	1.36 .13	1.38 .02	.29 T	.03 0	1.13 T	.32 T	.19 T	2.37 .01	16.74 2.60
1937 P Q	3.41 .01	3.36 .09	2.16 1.46	4.01 1.07	.69 .15	3.09 .05	.26 .01	.55 T	.82 T	1.43 .01	3.74 .02	4.18 .12	27.70 2.99
1938 P Q	1.91 .40	1.99 .62	2.21 1.21	1.64 .50	1.14 .12	1.32 .02	.29 .01	.15 0	.94 0	1.83 .02	2.57 .02	1.51 .02	17.50 2.94
1939 P Q	1.29 .04	3.79 .33	2.19 1.89	.61 .27	.76 .06	.73 .01	.67 T	0 0	.39 0	1.11 T	.35 .01	3.86 .01	15.75 2.62
1940 P Q	1.98 .05	4.71 .62	2.41 .77	2.41 .36	.74 .06	.44 .01							12.69 1.87
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**Av. P **Av. Q	2.99 .34	2.43 .39	2.30 1.31	1.91 .64	.85 .13	1.45 .03	.39 .01	.20 T	.71 T	1.16 .01	1.56 .01	2.92 .04	18.87 2.91
Normal P	2.78	2.11	2.16	1.59	1.87	1.47	.56	.61	1.27	1.68	2.86	2.74	21.70

**Notes:** \*\* Does not include part year amounts for 1934 and 1940. About one third of the precipitation for the period of Nov., Dec., Jan., Feb., March, and April is snow. Normal P based on 54 yr. record (1892-1945) at Moscow, Idaho. Quality of records: P - excellent; Q - excellent.



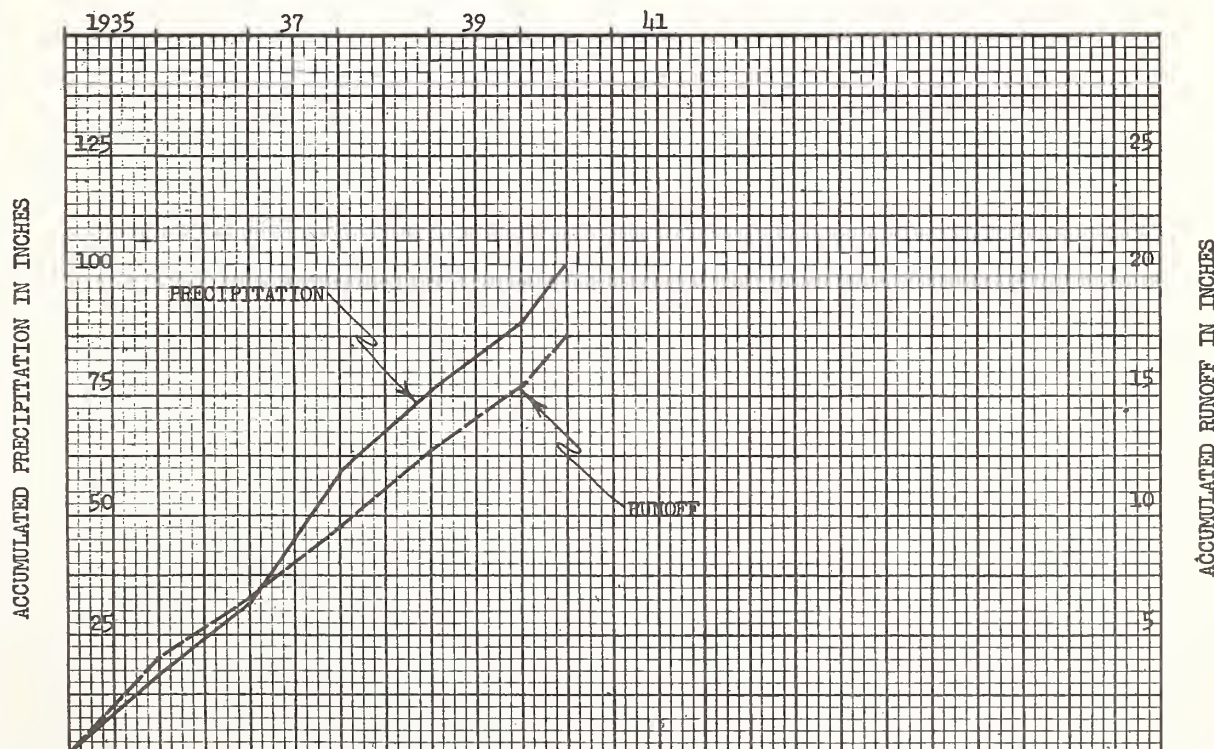
4-56

PULLMAN, WASHINGTON      Missouri Flat Creek \*LOCATION: Whitman Co., Wash. and Latah Co., Idaho; in Pullman; South Fork, Palouse River, Snake River Basin.AREA: 17,600 ac. (27.5 sq. mi.)      SHAPE: Long and narrow, about 2.5 mi. average width and 11 mi. length.SLOPES: 10% is in 0-3% class; 35% in 3-15%; 51% in 15-30%; 3% in 30-40%; 1% over 40%. Aspect W-SW.SOILS: Loessial; topsoil - medium texture, granular structure, 6-18 in. deep; subsoil - slightly finer texture than topsoil, 24-44 in. thick; substratum - slowly permeable clay under about 25% of the area, silt loam or silty clay loam under remainder. Internal drainage - medium to slow. Mostly Palouse silt loam and associated Athena silt loam, and Garfield silty clay loam.EROSION: 1 - 41%; 2 - 57%; 3 - 2%.LAND CAPABILITY: II - 40%; III - 50%; IV - 8%; VI - 2%.SURFACE DRAINAGE: Good; principal drainageway - 16 mi.; drainage system is well defined.CHARACTER OF FLOW: Surface-fed intermittent, continuous. (Some flow from seeps and springs during spring and early summer.)INSTRUMENTATION: Runoff - continuous record, modified Parshall flume with removable weir inserts for low flows, concrete control for high flows; precipitation - standard and recording raingages.WATERSHED CONDITIONS: No significant change in land use during period; cropland - 77%, pasture and range - 6%, permanent rangeland - 9%, woodland - 2%, other - 6%. In 1934 the cropland included 49% clean tilled peas and fallow, and 51% small grains, mostly winter wheat; area in sweet clover increased to 11% of the cropland area by 1940 with a reduction of clean tilled crops and fallow; no other pronounced changes in cropping pattern. Residue management increased from 1200 ac. in 1934 to 10,200 ac. in 1940, with burning of residues almost eliminated. 1.3 million sq. yds. of gullies sodded and 1,800 small gully control structures built during period.

\* This is approximately the same watershed as Watershed G.S.7 (Pullman).

GENERALLY REPRESENTS: Annual cropping areas of Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla counties and central Garfield and Columbia counties in Washington and western Latah County in Idaho).

## ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Pullman, Washington, Missouri Flat Creek

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P Q										3.54 .01	2.60 .02	2.87 .20	9.01 .23
1935 P Q	2.67 1.34	1.00 .68	2.54 .96	2.48 .99	0.24 .04	0.68 .01	0.59 T	0.46 T	0.28 T	.95 T	.95 T	2.60 .02	15.44 4.04
1936 P Q	5.16 .51	1.69 .44	1.84 1.44	.62 .16	1.44 .02	1.56 .01	.25 0	.01 0	1.37 T	.18 T	.24 T	2.41 T	16.77 2.58
1937 P Q	3.47 0	3.68 .06	2.15 1.92	3.85 .90	.64 .03	3.27 .03	.37 T	.55 T	.48 T	1.27 T	3.56 .01	4.17 .11	27.46 3.06
1938 P Q	1.82 .53	1.71 .92	2.44 1.30	1.23 .27	.99 .03	1.19 T	.30 T	.11 T	1.01 T	1.79 T	2.26 .01	1.66 .02	16.51 3.08
1939 P Q	1.44 .05	3.38 .33	2.23 2.19	.55 .11	.82 .01	.44 T	.56 T	0 T	.24 T	.87 T	.30 T	3.80 .01	14.63 2.70
1940 P Q	2.18 .05	4.90 .88	2.29 .80	2.28 .30	.62 .02	.38 T							12.65 2.05
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**Av. P **Av. Q	2.91 .49	2.29 .42	2.24 1.56	1.75 .49	0.83 .03	1.43 .01	.41 T	.23 T	.68 T	1.01 T	1.46 T	2.93 .03	18.17 3.10
Normal P	2.78	2.11	2.16	1.59	1.87	1.47	.56	.61	1.27	1.68	2.86	2.74	21.70

**Notes:** \*\* Does not include part year amounts for 1934 and 1940. About one third of the precipitation for the period of Nov., Dec., Jan., Feb., March, and April is snow. Normal P based on 54 yr. record (1892-1945) at Moscow, Idaho. Quality of records: P - excellent; Q - excellent.



4-56

## PULLMAN, WASHINGTON Four Mile Creek

LOCATION: Whitman Co., Wash. and Latah Co., Idaho; 8 mi. NW of Pullman; South Fork, Palouse River, Snake River Basin.

AREA: 46,000 ac. (71.9 sq. mi.) SHAPE: Irregular, about 5 mi. average width and 14 mi. length.

SLOPES: 10% is in 0-3% class; 34% in 3-15%; 44% in 15-30%; 9% in 30-40%; 3% over 40%. Aspect W.

SOILS: Loessial; topsoil - medium texture, granular structure, 6-18 in. deep; subsoil - slightly finer texture than topsoil, 24-44 in. thick; substratum - slowly permeable clay under about 25% of area, silt loam or silty clay loam under the remainder. Internal drainage - medium to slow. Mostly Palouse silt loam and associated Athena silt loam, and Garfield silty clay loam.

EROSION: 1 - 27%; 2 - 65%; 3 - 8%.

LAND CAPABILITY: II - 33%; III - 58%; IV - 6%; VI - 3%.

SURFACE DRAINAGE: Good; principal drainageway - 16 mi.; drainage system is well defined.

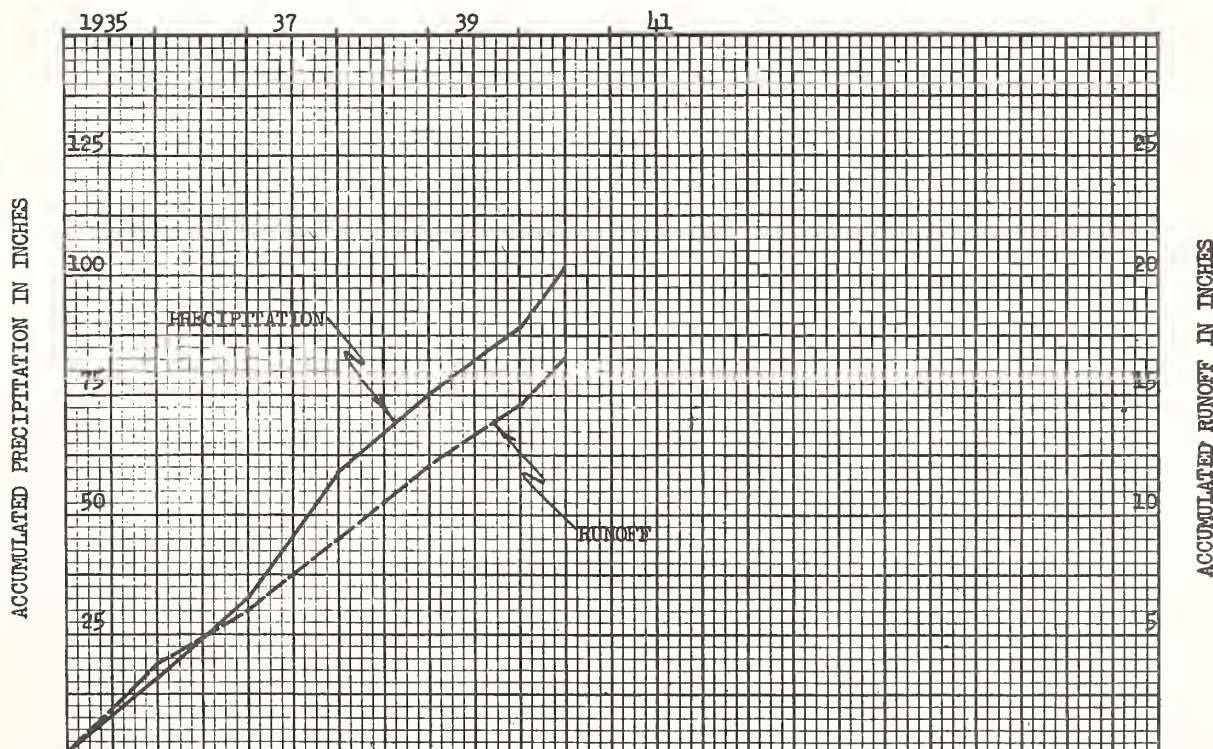
CHARACTER OF FLOW: Surface-fed intermittent, continuous. (Some flow from springs and seeps during spring and early summer.)

INSTRUMENTATION: Runoff - continuous record, modified Parshall flume with removable weir inserts for low flows, concrete control for high flows; precipitation - standard and recording raingages.

WATERSHED CONDITIONS: No significant change in land use during period; cropland - 76%, pasture and range - 8%, permanent hayland - 7%, woodland - 5%, other - 4%. In 1934 the cropland included 49% clean tilled peas and fallow, 1% sweet clover, and 50% small grains, mostly winter wheat; no pronounced change in cropping pattern during the period. Residue management increased from 8,700 ac. in 1934 to 21,300 ac. in 1938; burning of residues was reduced from 16,700 ac. in 1934 to 9,400 ac. in 1938. (Records of watershed condition not kept after 1938.)

GENERALLY REPRESENTS: Annual cropping areas of Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla Counties and central Garfield and Columbia Counties in Washington and western Latah County in Idaho.)

ACCUMULATED PRECIPITATION AND RUNOFF





MONTHLY PRECIPITATION AND RUNOFF (Inches) Pullman, Washington, Four Mile Creek

<div>Month Year</div>	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P Q										3.18 .01	2.45 .02	3.07 .22	8.70 .25
1935 P Q	2.71 1.19	0.86 .61	2.74 .91	2.45 .95	0.26 .09	0.86 .01	0.77 T	0.14 0	0.20 0	1.08 0	1.11 T	2.78 .02	15.96 3.78
1936 P Q	5.31 .51	1.59 .57	1.82 1.01	.60 .16	1.21 .04	1.80 .03	.15 0	.02 0	1.38 0	.17 0	.21 T	2.44 .01	16.70 2.33
1937 P Q	2.93 T	2.60 .11	1.66 1.65	4.04 .86	.68 .05	3.58 .03	.43 T	.72 0	.42 0	1.33 0	3.56 .01	4.61 .18	26.56 2.89
1938 P Q	1.79 .50	1.73 .91	2.51 1.34	1.05 .35	.97 .04	1.22 .01	.22 T	.02 0	.91 0	1.69 0	2.15 T	1.66 .03	15.92 3.18
1939 P Q	1.33 .06	2.91 .32	2.34 1.89	.50 .18	.84 .02	.50 .01	.52 T	.01 0	.25 0	.82 0	.28 T	3.49 .01	13.79 2.49
1940 P Q	2.02 .04	4.93 .75	2.41 .77	2.42 .32	.63 .03	.65 T							13.06 1.91
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**Av. P **Av. Q	2.81 .45	1.94 .50	2.21 1.36	1.73 .50	0.79 .05	1.59 .02	0.42 T	0.18 0	0.63 0	1.02 0	1.46 T	3.00 .05	17.78 2.93
Normal P	2.78	2.11	2.16	1.59	1.87	1.47	.56	.61	1.27	1.68	2.86	2.74	21.70

Notes: \*\* Does not include part year amounts for 1934 and 1940. About one third of the precipitation for the period of Nov., Dec., Jan., Feb., March, and April is snow. Normal P based on 54 yr. record (1892-1945) at Moscow, Idaho. Quality of records: P - excellent; Q - excellent.

5-56

PULLMAN, WASHINGTON Watershed G.S. 2LOCATION: Whitman Co., Wash.; 3 mi. NW of Pullman; South Fork, Palouse River, Snake River Basin.AREA: 68.2 ac.SHAPE: Irregular oval, about 1300 ft. wide and 2800 ft. long.SLOPES: 7% is in 0-3% class; 41% in 3-12%; 20% in 12-20%; 25% in 20-30%; 7% over 30%. Aspect W-NW.

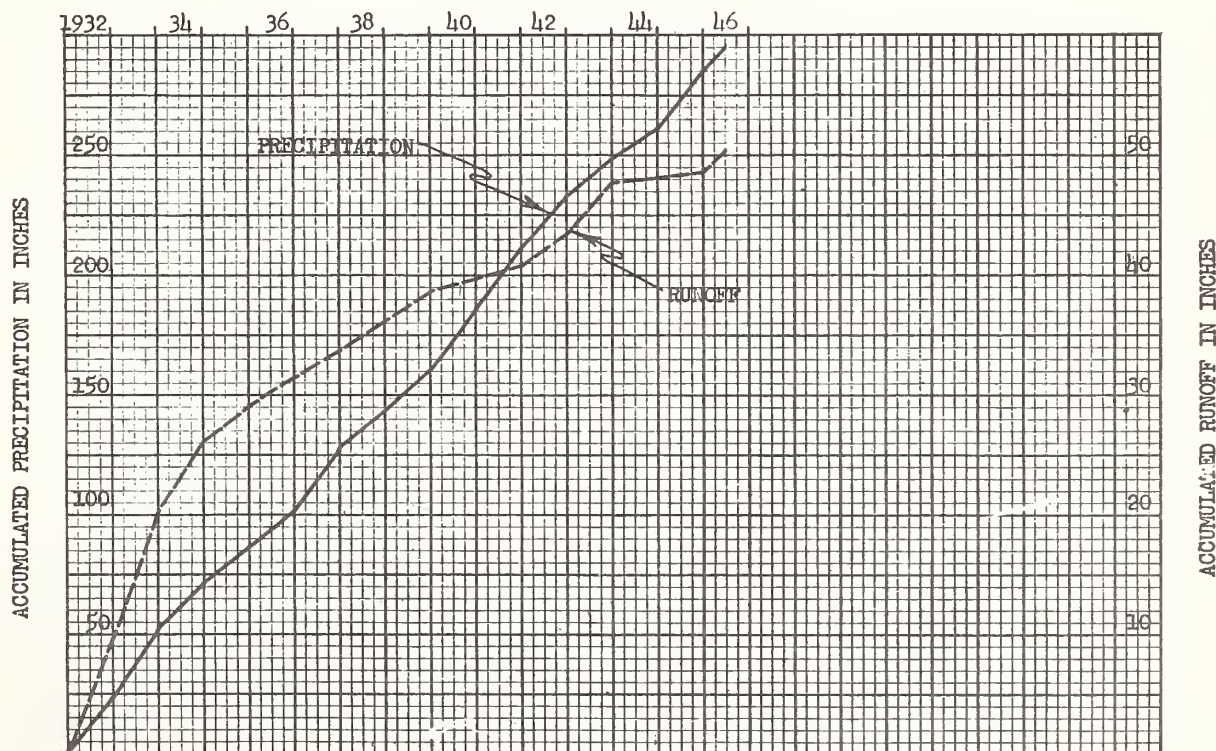
SOILS: Loessial - 93%, alluvial - 7%. Topsoil - medium texture, granular structure, 6-18 in. deep; subsoil - silt loam or silty clay loam, moderately slow permeability; substratum - slowly permeable clay or silty clay under 20% of area, silt loam or silty clay loam under remainder. Internal drainage medium to slow. Palouse silt loam - 78%; Palouse silty clay loam, shallow phase - 15%; Chambers silt / loam - 7%.

EROSION: 1 - 7%; 2 - 81%; 3 - 12%.LAND CAPABILITY: II - 32%; III - 54%; IV - 7%; VI - 7%.SURFACE DRAINAGE: Good; principal waterway - 2600 ft.CHARACTER OF FLOW: Surface-fed intermittent, continuous.INSTRUMENTATION: Runoff - 2 ft. sheet metal Parshall flume to summer of 1939, broadcrested V-notch weir thereafter; precipitation - standard and recording raingages.

WATERSHED CONDITIONS: In 1932 the acreages of crops were wheat - 36, peas - 19, fallow - 10; in 1933 wheat - 42; fallow - 23; in 1934 wheat - 21, potatoes - 15, fallow - 21; in 1935 wheat - 36, peas - 14, clover - 8; in 1936 wheat - 28, clover - 4, fallow - 26; in 1937 wheat - 31, peas - 22, potatoes - 7; in 1938 wheat - 34, fallow - 25; in 1939 wheat - 24, peas - 20, clover - 14. Balance of area in each year was in experimental plots, trees, and other uses.

GENERALLY REPRESENTS: Annual cropping areas of the Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla counties and central Garfield and Columbia counties in Washington and western Latah county in Idaho.)

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Pullman, Washington, Watershed G.S.-2

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1931 P	2.27	1.28	3.38	1.07	.60	1.24	.05	0	.81	1.90	2.34	3.30	18.24
Q								0	0	0	.04	.25	.29
1932 P	3.50	2.84	4.53	1.31	2.07	.28	.78	.15	.15	2.24	4.35	2.43	24.63
Q	1.59	2.51	4.12	.29	0	0	0	0	0	0	.15	1.07	9.73
1933 P	4.43	2.76	1.84	.56	.85	1.01	.22	.48	1.55	4.42	1.66	8.23	28.01
Q	3.42	.74	2.64	.05	0	0	0	0	0	0	.02	3.68	10.55
1934 P	2.66	.47	2.65	.79	1.17	2.67	.20	.03	.54	2.76	2.31	3.42	19.67
Q	2.23	.93	1.47	.28	0	0	0	0	0	.02	.26	.65	5.84
1935 P	2.93	1.08	2.23	2.13	.25	.62	.25	.60	.26	.74	.97	2.52	14.58
Q	1.36	.49	.50	.68	0	0	0	0	0	0	0	.02	3.05
1936 P	5.14	1.50	1.65	.62	1.08	.90	.09	0	1.33	.27	.12	1.98	14.68
Q	.52	.76	.60	.15	.05	0	0	0	0	0	0	0	2.08
1937 P	3.73	3.39	2.03	3.14	.57	3.76	.71	.49	.26	1.21	3.34	4.32	26.95
Q	0	.40	1.29	.50	0	T	0	0	0	0	.01	.30	2.50
1938 P	1.79	2.19	2.28	1.03	.89	1.04	.28	.06	.87	1.84	2.37	1.49	16.13
Q	.33	.59	.80	.41	.04	0	0	0	0	0	.09	.11	2.37
1939 P	1.33	3.98	2.91	.26	.72	.24	.57	0	.19	.97	.36	4.04	15.57
Q	.30	1.30	1.03	.05	0	0	0	0	0	0	0	T	2.68
1940 P	1.75	4.83	2.65	1.98	.37	.29	1.04	0	2.76	3.93	3.74	2.51	25.85
Q	.05	.35	.23	.09	T	0	0	0	0	0	.11	.14	.97
1941 P	2.30	1.23	1.06	1.99	4.22	4.02	.27	1.09	1.84	1.00	2.73	3.46	25.21
Q	.37	.27	.14	.12	.02	.01	0	0	0	0	.02	.17	1.12
1942 P	1.35	1.45	1.35	1.13	1.82	1.82	.78	.02	.50	2.26	5.13	4.45	22.06
Q	.17	.23	.57	.04	.02	T	0	0	0	0	0	1.57	2.60
1943 P	2.29	1.37	2.18	1.23	1.23	1.51	.62	.37	.37	2.38	1.37	1.46	16.38
Q	.54	2.05	.98	.56	.08	T	0	0	0	0	0	0	4.21
1944 P	.62	2.79	.61	1.73	.89	.84	0	.62	.64	.67	1.62	1.09	12.12
Q	0	.11	.33	.07	0	0	0	0	0	0	0	0	.51
1945 P	2.79	1.95	2.63	1.44	1.78	1.09	0	.21	2.97	.59	4.39	4.13	23.97
Q	.09	.02	.08	.02	0	0	0	0	0	0	0	.24	.45
1946 P	3.18	1.62	1.78	.94	1.03	1.75	.23	.13	.86	3.17	2.44	2.19	19.32
Q	.35	.70	.80	.10	0	0							1.95
P													
Q													
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** Av. P	2.62	2.27	2.19	1.38	1.28	1.44	.42	.29	1.02	1.81	2.46	3.25	20.43
** Av. Q	.78	.77	1.06	.24	.02	T	0	0	0	T	.05	.57	3.49
Normal P	2.76	2.16	2.08	1.41	1.57	1.38	.52	.60	1.14	1.74	2.81	2.82	20.99

**Notes:** \*\* Does not include the part year amounts for 1931 and 1946. Normal P based on average of W. B. stations at Pullman, Moscow, and Colfax for period of 1893-1930 and Experiment station gage from 1931-55. Quality of records: P - excellent; Q - excellent.



LOCATION: Whitman Co., Wash.; 3 mi. NW of Pullman; South Fork, Palouse River, Snake River Basin.

AREA: 2.33 ac.

SHAPE: Irregular; width about 300 ft. at lower boundary and 420 ft. at upper, 300 ft. long.

SLOPES: 26% is in 3-12% class; 74% in 12-20%. Aspect S.

SOILS: Loessial. Topsoil - medium to fine texture, granular structure, 6-18 in. deep; subsoil - silt loam or silty clay loam, 24-40 in. thick, moderately slow permeability; substratum - slowly permeable clay or silty clay under 35% of area, silt loam or silty clay loam under remainder. Internal drainage medium to slow. Palouse silt loam - 66%; Palouse silty clay loam, shallow phase - 34%.

EROSION: 2 - 66%; 3 - 34%.

LAND CAPABILITY: II - 26%; III - 74%.

SURFACE DRAINAGE: Good; principal waterway - 320 ft.; no well defined waterways.

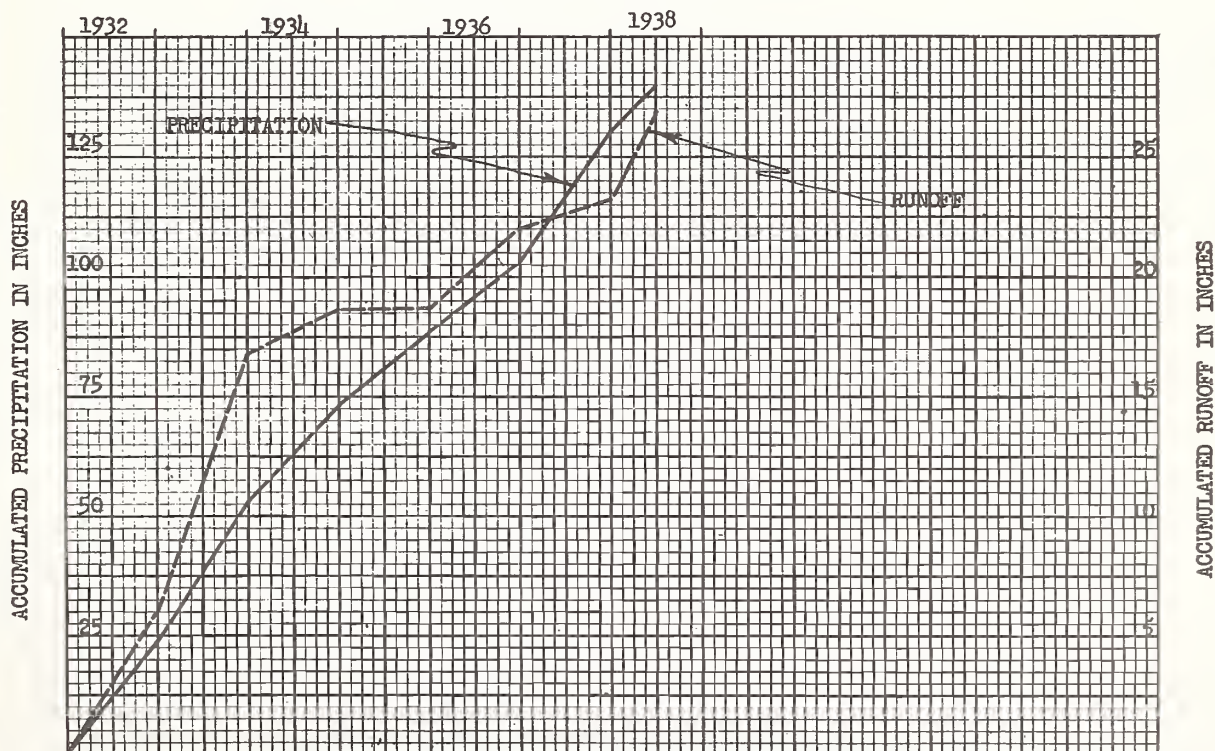
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - one ft. sheet metal Parshall flume; precipitation - standard and recording raingages.

WATERSHED CONDITIONS: All cultivated; winter wheat and summer fallow in alternate years beginning with winter wheat in 1932.

GENERALLY REPRESENTS: Annual cropping areas of the Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (limited to eastern Whitman and Walla Walla counties and central Garfield and Columbia counties in Washington and western Latah county in Idaho)

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches)** Pullman, Washington, Watershed G.S.-4

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1931P	2.22	1.42	3.91	1.09	.50	1.30	.05	0	.78	1.84	2.35	3.06	18.52
Q										0	0	.41	.41
1932P	3.26	2.92	4.50	1.28	1.96	.26	.77	.15	.13	2.29	4.44	2.42	24.38
Q	1.00	1.61	1.94	.03	0	0	0	0	0	0	.04	1.42	6.04
1933P	4.56	2.80	1.89	.60	.91	1.07	.25	.47	1.65	4.41	1.73	8.43	28.77
Q	2.55	1.12	1.63	0	0	0	0	0	0	.07	.38	4.98	10.73
1934P	2.71	.51	2.66	.84	1.40	2.82	.20	.03	.53	2.78	2.38	3.56	20.42
Q	1.07	.03	.73	0	0	0	0	0	0	0	0	0	1.83
1935P	3.03	1.09	2.27	2.23	.29	.65	.24	.60	.32	.83	.95	2.56	15.06
Q	0	0	0	0	0	0	0	0	0	0	0	0	0
1936P	5.06	1.57	1.56	.67	1.13	.95	.11	0	1.38	.30	.14	2.10	14.97
Q	.96	2.36	.08	0	0	0	0	0	0	0	0	0	3.40
1937P	3.73	3.44	2.02	3.16	.57	4.01	.89	.58	.26	1.18	3.29	4.20	27.33
Q	0	0	.68	0	0	0	0	0	0	0	0	.65	1.33
1938P	1.73	2.23	2.27	.97	.84	1.00	.31	.03	.84	1.87	2.44	1.50	16.03
Q	1.25	1.45	.93	0	0	0							3.63
P													
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** Av. P	3.73	2.05	2.48	1.46	1.04	1.63	0.41	0.31	0.71	1.97	2.15	3.88	21.82
** Av. Q	.93	.85	.84	.01	0	0	0	0	0	.01	.07	1.18	3.89
Normal P	2.76	2.16	2.08	1.41	1.57	1.38	.52	.60	1.14	1.74	2.81	2.82	20.99

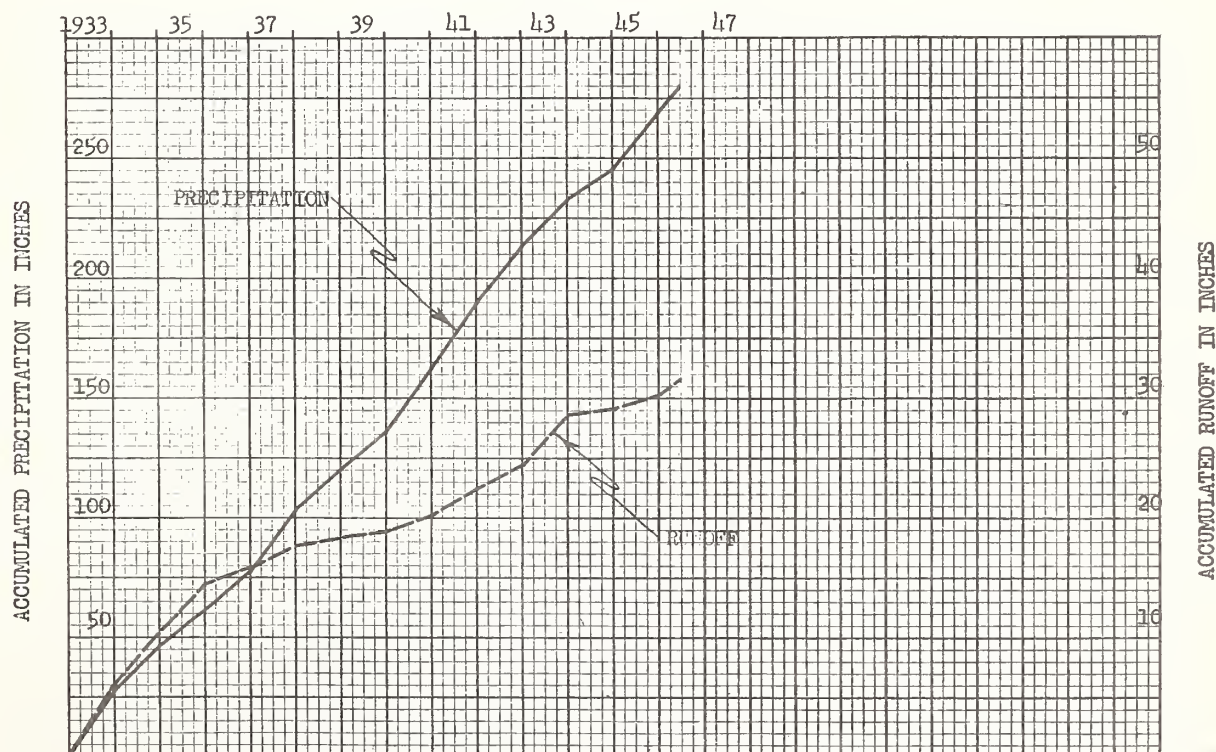
**Notes:** \*\* Does not include the part year amounts for 1931 and 1938. Normal P based on average of W. B. stations at Pullman, Moscow, and Colfax for period 1893-1930 and Experiment station gage from 1931-55. Quality of records: P - excellent; Q - excellent.

5-56

PULLMAN, WASHINGTON Watershed G.S.5

LOCATION: Whitman Co., Wash.; 3 mi. NW of Pullman; South Fork, Palouse River, Snake River Basin.AREA: 14.4 ac.SHAPE: Irregular oblong coming to point at upper end; about 550 ft. wide and 1500 ft. long.SLOPES: 39% is in 3-12% class; 35% in 12-20%; 17% in 20-30%; 9% over 30%. Aspect SW.SOILS: Loessial. Topsoil - medium to fine texture, granular structure, 6-18 in. deep; subsoil - silt loam or silty clay loam, 24-40 in. thick, moderately slow permeability; substratum - slowly permeable clay or silty clay under about 20% of area, silt loam or silty clay loam under remainder. Internal drainage - medium to slow. Palouse silt loam - 80%; Palouse silty clay loam, shallow phase - 20%.EROSION: 1 - 14%; 2 - 66%; 3 - 20%.LAND CAPABILITY: II - 20%; III - 71%; IV - 9%.SURFACE DRAINAGE: Good; principal drainageway - 1550 ft.; drained by a swale extending three quarters of the way to the head of the watershed.CHARACTER OF FLOW: Ephemeral, continuous.INSTRUMENTATION: Runoff - 2 ft. sheet metal Parshall flume in summer of 1939, broadcrested V-notch weir thereafter; precipitation - standard and recording raingages.WATERSHED CONDITIONS: All cultivated; 1932 - summer fallow, 1933 - winter wheat, 1934 - summer fallow, 1935 - winter wheat, 1936 - peas, 1937 - winter wheat, 1938 - flax, 1939 - flax and clover.GENERALLY REPRESENTS: Annual cropping areas of the Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla counties and central Garfield and Columbia counties in Washington and western Latah county in Idaho)

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Washington Agricultural Experiment Station



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Pullman, Washington, Watershed G.S.-5**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year.
1932 P Q	3.50	2.84	4.53	1.31	2.07	.28	.78	.15	.15 *0	2.24 0	4.35 .04	2.43 .62	24.63 .66
1933 P Q	4.43 2.73	2.76 .15	1.84 1.78	.56 .01	.85 0	1.01 0	.22 0	.48 0	1.55 0	4.42 0	1.66 0	8.23 1.18	28.01 5.85
1934 P Q	2.66 .95	.47 .60	2.65 1.60	.79 .23	1.17 0	2.67 0	.20 0	.03 0	.54 0	2.76 0	2.31 .07	3.42 1.01	19.67 4.46
1935 P Q	2.93 2.09	1.08 .45	2.23 .66	2.13 1.05	.25 .03	.62 0	.25 0	.60 0	.26 0	.74 0	.97 0	2.52 0	14.58 4.28
1936 P Q	5.14 .19	1.50 .17	1.65 .70	.62 0	1.08 0	.90 0	.09 0	0 0	1.33 0	.27 0	.12 0	1.98 0	14.68 1.06
1937 P Q	3.73 0	3.39 .24	2.03 1.35	3.14 .35	.57 0	3.76 .15	.71 0	.49 0	.26 0	1.21 0	3.34 0	4.32 0	26.95 2.09
1938 P Q	1.79 0	2.19 .02	2.28 .54	1.03 .02	.89 0	1.04 0	.28 0	.06 0	.87 0	1.84 0	2.37 0	1.49 0	16.13 .58
1939 P Q	1.33 0	3.98 .03	2.91 .63	.26 0	.72 0	.24 0	.57 0	0 0	.19 0	.97 0	.36 0	4.04 0	15.57 .66
1940 P Q	1.84 .24	4.85 .09	2.43 .14	2.38 .07	.52 0	.33 0	1.17 0	0 0	3.01 0	4.17 0	3.67 .01	2.48 .51	26.85 1.06
1941 P Q	2.20 1.39	1.25 .48	1.38 .38	2.31 .08	4.42 .01	4.60 0	.27 0	1.64 0	1.99 0	1.17 0	2.89 0	3.67 .08	27.79 2.42
1942 P Q	1.39 .17	1.51 .56	1.60 .68	1.38 0	2.25 0	1.79 0	.93 0	.02 0	.64 0	2.57 0	5.34 0	4.16 .55	23.58 1.96
1943 P Q	2.27 .31	1.49 2.50	2.40 1.17	1.36 .31	1.74 .01	1.73 0	.63 0	.44 0	.40 0	3.05 0	1.58 0	1.53 0	18.62 4.30
1944 P Q	.60 0	2.74 .08	.53 .39	2.21 0	1.05 0	1.00 0	0 0	.63 0	.60 0	.71 0	1.56 0	.98 0	12.61 .47
1945 P Q	2.70 0	2.01 0	3.12 0	1.69 0	1.68 0	1.31 0	0 0	.26 0	2.99 0	.66 0	4.27 0	4.10 .85	24.79 .85
1946 P Q	2.96 .55	1.69 .67	2.18 .56	1.07 T	1.02 0	1.79 0	.23	.14	.90	0	0	0	11.98 1.78
P Q													
P Q													
P Q													
P Q													
** Av. P ** Av. Q	2.54 .62	2.25 .41	2.08 .77	1.53 .16	1.32 T	1.62 .01	.41 0	.36 0	1.13 0	1.89 0	2.34 .01	3.30 .32	20.77 2.30
Normal P	2.76	2.16	2.08	1.41	1.57	1.38	.52	.60	1.14	1.74	2.81	2.82	20.99

**Notes:** \* Installed Sept. 11. \*\* Does not include the part year amounts for 1932 and 1946. Normal P based on average of W. B. stations at Pullman, Moscow, and Colfax for period of 1893-1930 and Experiment station gage from 1931-55. Quality of records: P - excellent; Q - excellent.

LOCATION: Whitman Co., Wash.; 3 mi. NW of Pullman; South Fork, Palouse River, Snake River Basin.

AREA: 15.2 ac.

SHAPE: Irregular circle, about 850 ft. in diameter.

SLOPES: 42% is in 3-12% class; 58% in 20-30%. Aspect N.

SOILS: Loessial. Topsoil - medium to fine texture, granular structure, 6-18 in. deep; subsoil - silt loam or silty clay loam, 24-40 in. thick, moderately slow permeability; substratum - slowly permeable clay or silty clay under about 25% of the area, silt loam or silty clay loam under remainder. Internal drainage - medium to slow. Palouse silt loam - 78%; Palouse silty clay loam, shallow phase - 22%.

LAND CAPABILITY: II - 18%; III - 82%.

SURFACE DRAINAGE: Good; principal drainageway - 950 ft.; drained by two well defined swales extending half way to the head of the watershed.

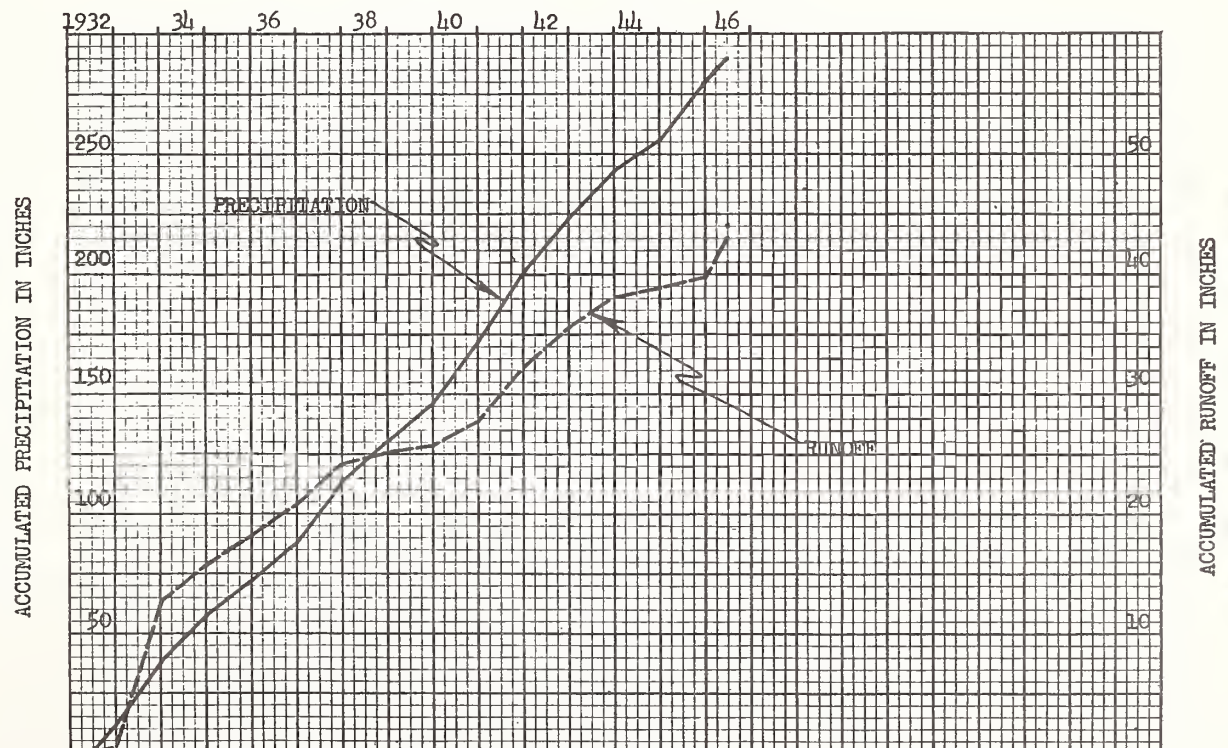
CHARACTER OF FLOW: Ephemeral, continuous.

INSTRUMENTATION: Runoff - one ft. sheet metal Parshall flume to summer of 1939, broad crested V-notch weir thereafter; precipitation - standard and recording raingages.

WATERSHED CONDITIONS: All cultivated; 1932 - winter wheat, 1933 - summer fallow, 1934 - winter wheat, 1935 - peas and clover, 1936 - peas and clover, 1937 - winter wheat, 1938 - spring wheat, 1939 - peas.

GENERALLY REPRESENTS: Annual cropping areas of the Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla counties and central Garfield and Columbia counties in Washington and western Latah county in Idaho).

ACCUMULATED PRECIPITATION AND RUNOFF



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Pullman, Washington, Watershed G.S.-6**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932 P	3.50	2.84	4.53	1.31	2.07	.28	.78	.15	.15	2.24	4.35	2.43	24.63
Q							0	0	0	0	0	.37	.37
1933 P	4.43	2.76	1.84	.56	.85	1.01	.22	.48	1.55	4.42	1.66	8.23	28.01
Q	2.49	.41	3.70	.24	0	0	0	0	0	.06	.69	4.44	12.03
1934 P	2.66	.47	2.65	.79	1.17	2.67	.20	.03	.54	2.76	2.31	3.42	19.67
Q	1.94	.24	.80	.08	0	0	0	0	0	0	0	.19	3.25
1935 P	2.93	1.08	2.23	2.13	.25	.62	.25	.60	.26	.74	.97	2.52	14.58
Q	.65	.20	.60	.91	.07	0	0	0	0	0	0	.09	2.52
1936 P	5.14	1.50	1.65	.62	1.08	.90	.09	0	1.33	.27	.12	1.98	14.68
Q	.70	1.27	.69	.05	0	0	0	0	0	0	0	0	2.71
1937 P	3.73	3.39	2.03	3.14	.57	3.76	.71	.49	.26	1.21	3.34	4.32	26.95
Q	0	.54	*1.61	.70	T	.03	0	0	0	0	0	.36	3.24
1938 P	1.79	2.19	2.28	1.03	.89	1.04	.28	.06	.87	1.84	2.37	1.49	16.13
Q	.05	.14	.50	.20	.01	0	0	0	0	0	0	0	.90
1939 P	1.33	3.98	2.91	.26	.72	.24	.57	0	.19	.97	.36	4.04	15.57
Q	T	.03	.71	.01	0	0	0	0	0	0	0	0	.75
1940 P	1.84	4.85	2.43	2.38	.52	.33	1.17	0	3.01	4.17	3.67	2.48	26.85
Q	0	.17	.64	.17	T	0	0	0	0	0	.33	.78	2.09
1941 P	2.20	1.25	1.38	2.31	4.42	4.60	0.27	1.64	1.99	1.17	2.89	3.67	27.79
Q	1.56	.74	.60	.44	.31	.42	0	.01	0	0	.01	.17	4.26
1942 P	1.39	1.51	1.60	1.38	2.25	1.79	.93	.02	.64	2.57	5.34	4.16	23.58
Q	.29	1.21	1.15	.47	.08	0	0	0	0	0	.01	.30	3.51
1943 P	2.27	1.49	2.40	1.36	1.74	1.73	.63	.44	.40	3.05	1.58	1.53	18.62
Q	.04	1.73	.33	.10	.18	0	0	0	0	T	.13	.07	2.58
1944 P	.60	2.74	.53	2.21	1.05	1.00	0	.63	.60	.71	1.56	.98	12.61
Q	T	.13	.53	.03	0	0	0	0	0	0	0	0	.69
1945 P	2.70	2.01	3.12	1.69	1.68	1.31	0	.26	2.99	.66	4.27	4.10	24.79
Q	0	.01	.04	0	0	0	0	0	0	0	T	.96	1.01
1946 P	2.96	1.69	2.18	1.07	1.02	1.79	.23	.14	.90				11.98
Q	.72	1.32	1.10	.09	0	0							3.23
P													
Q													
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** Av. P	2.54	2.25	2.08	1.53	1.32	1.62	.41	.36	1.13	1.89	2.34	3.30	20.77
** Av. Q	.59	.52	.92	.26	.05	.03	0	T	0	T	.09	.57	3.03
Normal P	2.76	2.16	2.08	1.41	1.57	1.38	.52	.60	1.14	1.74	2.81	2.82	20.99

**Notes:** \* Partially estimated. \*\* Does not include the part year amounts for 1932 and 1946. Normal P based on average of W. B. stations at Pullman, Moscow, and Colfax for period of 1893-1930 and Experiment station gage from 1931-1955. Quality of records: P - excellent; Q - excellent.



LOCATION: Whitman Co., Wash. and Latah Co., Idaho; 25 mi. N. of Pullman; South Fork, Palouse River, Snake River Basin.

AREA: 16,700 ac. (26.1 sq. mi.) SHAPE: Long and narrow, about 2.5 mi. average width and 10.5 mi. in length.

SLOPES: 10% is in 0-3% class; 35% in 3-15%; 51% in 15-30%; 3% in 30-40%; 1% over 40%. Aspect W-SW.

SOILS: Loessial. Topsoil - medium texture, granular structure, 6-18 in. deep; subsoil - slightly finer texture than topsoil, 24-44 in. thick; substratum - slowly permeable clay under about 25% of this area, silt loam or silty clay loam under remainder. Internal drainage medium to slow. Mostly Palouse silt loam and associated Athena silt loam and Garfield silty clay loam.

EROSION: 1 - 41%; 2 - 57%; 3 - 2%.

LAND CAPABILITY: II - 40%; III - 50%; IV - 8%; VI - 2%.

SURFACE DRAINAGE: Good; principal drainage way - 15.5 mi.; drainage system is well defined.

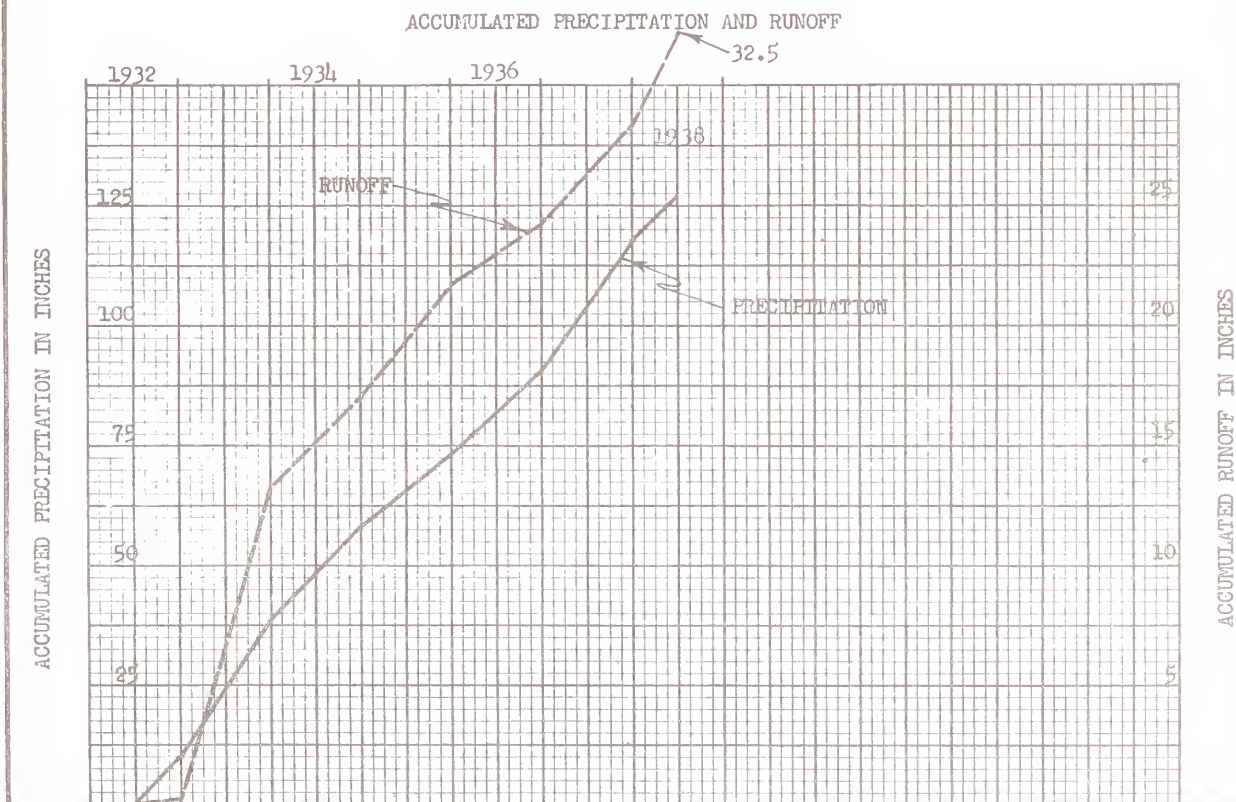
CHARACTER OF FLOW: Surface-fed intermittent, continuous. (Some flow from seeps and springs during spring and early summer.)

INSTRUMENTATION: Runoff - continuous record, current meter rated channel section, Bristol pressure type water stage recorder; precipitation - standard and recording raingages.

WATERSHED CONDITIONS:

\* This is approximately the same watershed as Missouri Flat Creek (Pullman) and the same watershed conditions apply.

GENERALLY REPRESENTS: Annual cropping areas of the Palouse Area-Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla counties and central Garfield and Columbia counties in Washington and western Latah county in Idaho).



**MONTHLY PRECIPITATION AND RUNOFF (Inches) Pullman, Washington, Watershed G. S.-7**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1932 P							.78	.15	.15	2.24	4.35	2.43	10.10
Q							0	0	0	0	0	.18	.18
1933 P	4.43	2.76	1.84	.56	.85	1.01	.22	.48	1.55	4.42	1.66	8.23	28.01
Q	2.21	.86	4.91	.35	.12	.03	0	0	.13	.08	.25	4.12	13.06
1934 P	2.66	.47	2.65	.79	1.17	2.67	.20	.03	.54	3.54	2.60	2.87	20.19
Q	2.21	.32	.93	.14	.02	.02	0	0	0	.01	.01	.21	3.87
1935 P	2.67	1.00	2.54	2.48	.24	.68	.59	.46	.28	.95	.95	2.60	15.44
Q	1.69	.73	1.07	1.03	.07	.01	T	0	0	0	T	.02	4.62
1936 P	5.16	1.69	1.84	.62	1.44	1.56	.25	.01	1.37	.18	.24	2.41	16.77
Q	.59	.44	1.34	.12	T	0	0	0	0	0	0	T	2.49
1937 P	3.47	3.68	2.15	3.85	.64	3.27	.37	.55	.48	1.27	3.56	4.17	27.46
Q	0	* .06	2.63	1.17	.06	.05	T	0	0	0	.01	.14	4.12
1938 P	1.82	1.71	2.44	1.23	.99	1.19							9.38
Q	.74	1.32	1.73	.32	.07	.01							4.19
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** Av. P	3.68	1.92	2.20	1.66	.87	1.84	.33	.31	.84	2.07	1.80	4.06	21.58
** Av. Q	1.34	.48	2.18	.56	.05	.02	T	0	.03	.02	.05	.90	5.63
Normal P	2.78	2.11	2.16	1.59	1.87	1.47	.56	.61	1.27	1.68	2.86	2.74	21.70

**Notes:** \* Estimated. \*\* Does not include the part year amounts for 1932 and 1938. Normal P based on 54 yr. record (1892-1945) at Moscow, Idaho. Quality of records: P - good; Q - fair.

LOCATION: Whitman Co., Wash.; 3 mi. N-NW of Pullman; South Fork, Palouse River, Snake River Basin.

AREA: 762 ac. (1.19 sq. mi.) SHAPE: Irregular, average width about 0.7 mi., length about 1.8 mi.

SLOPES: 8% is in 0-3% class; 34% in 3-12%; 8% in 12-20%; 47% in 20-30%; 3% over 30%. Aspect S.

SOILS: Loessial. Topsoil - medium texture, granular structure, 6-18 in. deep; subsoil - silt loam or silty clay loam, 24-40 in. thick, moderately slow permeability; substratum - slowly permeable clay or silty clay under about 25% of the area, silt loam or silty clay loam under remainder. Internal drainage - medium to slow. Palouse silt loam - 85%; other associated silt loams and silty clay loams - 15%.

EROSION: 1 - 26%; 2 - 70%; 3 - 4%.

LAND CAPABILITY: II - 37%; III - 60%; IV - 2%; VI - 1%.

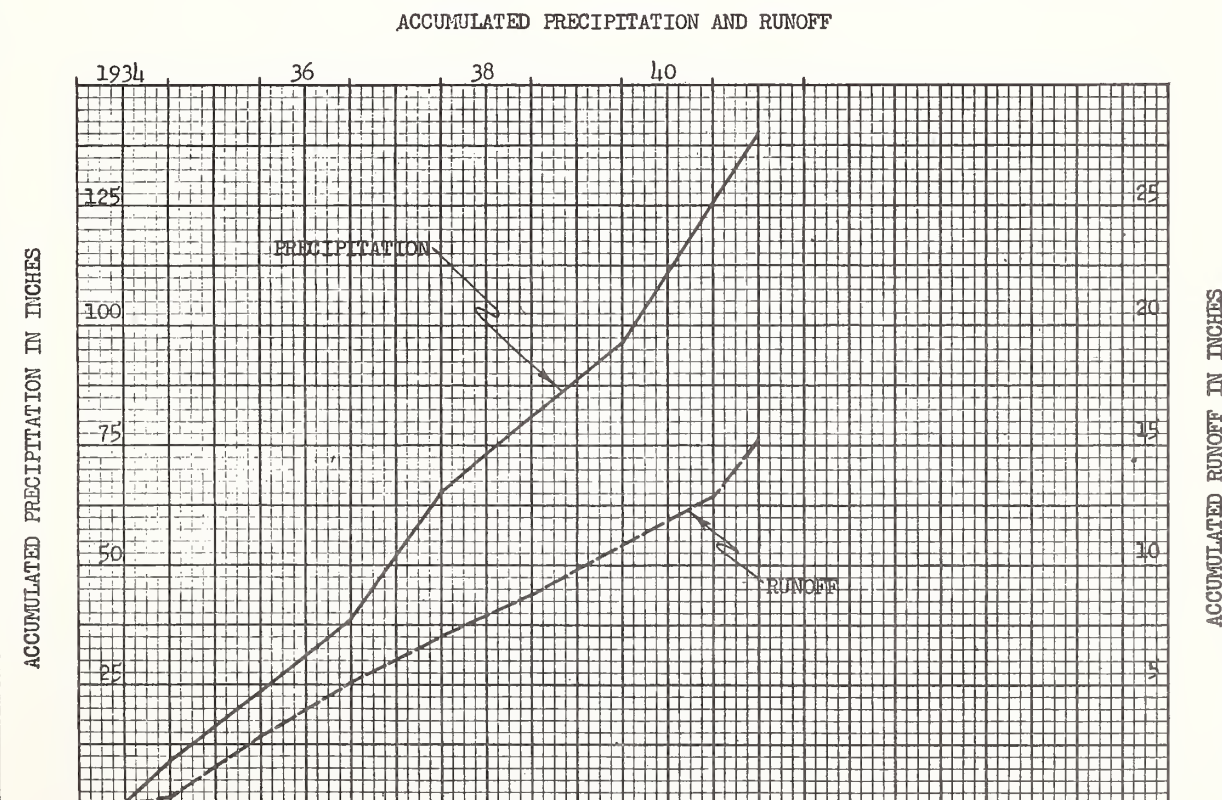
SURFACE DRAINAGE: Good; principal drainageway - 1.85 mi; main watercourse runs the length of the watershed with about two thirds of the drainage area on the west side; minor well defined waterways enter the main stem from each side at intervals of about 900 ft.

CHARACTER OF FLOW: Surface-fed intermittent, continuous.

INSTRUMENTATION: Runoff - 4 ft. modified wood Parshall flume to summer of 1939, broad crested V-notch weir thereafter; precipitation - standard and recording raingages.

WATERSHED CONDITIONS: About 95% cultivated land, balance in pasture, farmsteads, etc. Principal crops were wheat with alternate years of peas or summer fallow. Crop conditions during the period of record were fairly uniform.

GENERALLY REPRESENTS: Annual cropping areas of the Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla counties and central Garfield and Columbia counties in Washington and western Latah county in Idaho).





MONTHLY PRECIPITATION AND RUNOFF (Inches) Pullman, Washington, Watershed G.S.-8

<div>Month Year</div>	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1934 P Q	2.66	.47	2.65	.79	1.17	2.67	.20 0	.03 0	.54 0	2.76 0	2.31 .02	3.42 .27	19.67 .29
1935 P Q	2.93 1.06	1.08 .47	2.23 .53	2.13 .55	.25 T	.62 0	.25 0	.60 0	.26 0	.74 0	.97 0	2.52 .01	14.58 2.62
1936 P Q	5.14 .59	1.50 .62	1.65 .86	.62 .12	1.08 0	.90 0	.09 0	0 0	1.33 0	.27 0	.12 0	1.98 0	14.68 2.19
1937 P Q	3.73 0	3.39 .03	2.03 1.21	3.14 .56	.57 T	3.76 .12	.71 0	.49 0	.26 0	1.21 0	3.34 0	4.32 .07	26.95 1.99
1938 P Q	1.79 .13	2.19 .58	2.28 .88	1.03 .12	.89 .01	1.04 0	.28 0	.06 0	.87 0	1.84 0	2.37 0	1.49 0	16.13 1.72
1939 P Q	1.33 .02	3.98 .35	2.91 1.54	.26 .10	.72 .01	.24 0	.57 0	0 0	.19 0	.97 0	.36 0	4.04 T	15.57 2.02
1940 P Q	1.85 .03	5.33 .62	2.82 .62	2.09 .29	.49 .01	.35 0	1.29 0	0 0	3.01 0	4.16 0	3.87 .17	2.70 .40	27.96 2.14
1941 P Q	2.35 .98	1.25 .51	1.16 .37	2.17 .20	4.35 .12	4.30 .23	.24 .01	1.14 0	2.14	1.17	2.89	3.67	26.83 2.42
P Q													
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** Av. P ** Av. Q	2.80 .30	2.91 .44	2.32 .94	1.54 .29	.67 .01	1.15 .02	.53 0	.19 0	.99 0	1.53 0	1.84 .03	2.84 .08	19.31 2.11
Normal P	2.76	2.16	2.08	1.41	1.57	1.38	.52	.60	1.14	1.74	2.81	2.82	20.99

**Notes:** \*\* Does not include the part year amounts for 1934 and 1941. Normal P based on average of W. B. stations at Pullman, Moscow, and Colfax for period of 1895-1930 and Experiment station gage from 1931-1955. Quality of records: P - good; Q - excellent.

LOCATION: Whitman Co., Wash.; 4.5 mi. NW of Pullman; South Fork, Palouse River, Snake River Basin.

AREA: 879 ac. (1.37 sq. mi.) SHAPE: Irregular oval, about 0.75 mi. wide and 2 mi. long.

SLOPES: 11% is in 0-3% class; 25% in 3-12%; 34% in 12-20%; 21% in 20-30%; 9% over 30%. Aspect S-SW.

SOILS: Loessial and alluvial. Topsoil - medium texture, granular structure, 6-18 in. deep; subsoil - silt loam or silty clay loam, 24-40 in. thick; substratum - slowly permeable clay or silty clay under about 50% of the area, silt loam or silty clay loam under remainder. Internal drainage - medium to slow. Palouse silt loam - 84%; other associated silt loams and silty clay loams - 15%; stony areas - 1%.

LAND CAPABILITY: II - 29%; III - 60%; IV - 10%; VI - 1%.

SURFACE DRAINAGE: Good; principal waterway 2.5 mi. long, main channel runs the length of the watershed with about 3/4 of drainage area on the east side of the main channel; three well defined watercourses enter from the east and one rather small drainage from the north.

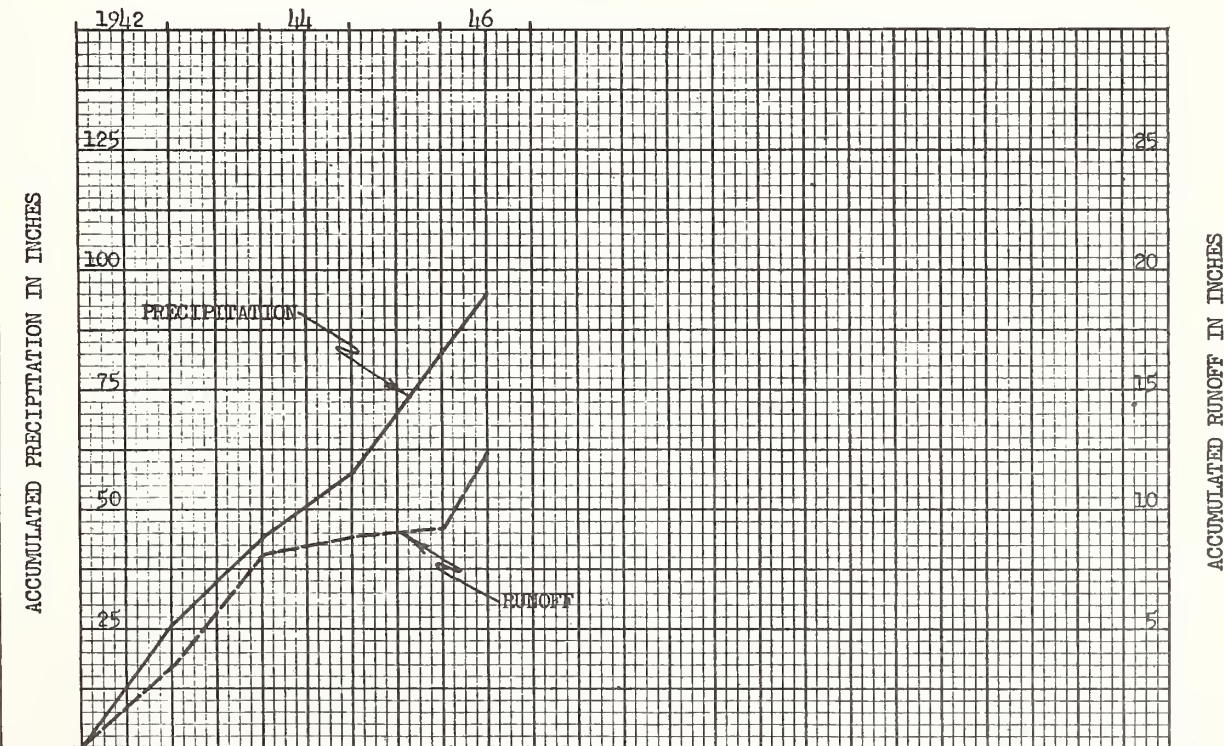
CHARACTER OF FLOW: Surface-fed intermittent, continuous.

INSTRUMENTATION: Runoff - broad crested V-notch weir; precipitation - standard and recording rain-gages.

WATERSHED CONDITIONS: Agriculture typical of region. Main crops were wheat and peas; a small percentage in pasture and farmsteads. A county road crosses thru the center of the watershed; the culvert at the stream crossing was adequate to carry the flow from the upper watershed.

GENERALLY REPRESENTS: Annual cropping areas of the Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla counties and central Garfield and Columbia counties in Washington and western Latah county in Idaho).

ACCUMULATED PRECIPITATION AND RUNOFF



MONTHLY PRECIPITATION AND RUNOFF (Inches) Pullman, Washington, Watershed G.S.-9

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P Q							0	0	0	0	.01	.35	.36
1942 P Q	1.43 .50	1.53 1.10	1.50 .75	1.87 .14	2.46 .09	2.35 .01	.86 0	.02 0	.54 0	2.58 0	6.00 .08	4.28 .81	25.42 3.48
1943 P Q	2.27 .97	1.64 2.29	2.33 .81	1.44 .39	1.76 .06	1.49 .02	.58 T	.43 0	.33 0	2.90 0	1.63 T	1.54 .03	18.34 4.57
1944 P Q	.64 .06	2.74 .24	.56 .37	2.29 .09	1.01 0	1.12 0	0 0	.59 0	1.04 0	.76 0	1.92 0	1.40 0	14.07 .76
1945 P Q	2.73 T	2.00 .01	3.28 .12	1.92 .07	1.61 0	1.21 0	0 0	.16 0	3.38 0	.61 0	4.44 T	4.21 .18	25.55 .38
1946 P Q	3.60 .71	1.90 1.32	2.26 1.05	1.11 .19	.90 .01	2.26 T	.18	.15	1.04				13.40 3.28
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** Av. P ** Av. Q	1.77 .38	1.98 .91	1.92 .51	1.88 .17	1.71 .04	1.54 .01	.36 T	.30 0	1.32 0	1.71 0	3.50 .02	2.86 .26	20.85 2.30
Normal P	2.76	2.16	2.08	1.41	1.57	1.38	.52	.60	1.14	1.74	2.81	2.82	20.99

Notes: \*\* Does not include the part year amounts for 1941 and 1946. Normal P based on average of W. B. stations at Pullman, Moscow, and Colfax for period of 1895-1930 and Experiment station gage from 1931-1955. Quality of records: P - good; Q - excellent.



LOCATION: Whitman Co., Wash.; 0.5 mi. S of Pullman; South Fork, Palouse River, Snake River Basin.

AREA: 4,430 ac. (6.92 sq. mi.) SHAPE: Roughly rectangular, 2.7 mi. wide and 4.8 mi. long.

SLOPES: 11% is in 0-3% class; 16% in 3-12%; 44% in 12-20%; 18% in 20-30%; 10% in over 30%; 1% not differentiated. Aspect N-NE.

SOILS: Loessial - 90%, alluvial - 10%. Topsoil - medium texture, granular structure, 6-18 in. deep; subsoils - medium to fine texture, 24-40 in. thick; substratum - slowly permeable clay or silty clay under about 45% of the area, silt loam or silty clay loam under remainder. Internal drainage - medium to slow. Palouse silt loam - 49%; Palouse silt loam shallow surface phase - 35%; Chambers silt loam - 7%; other silt loams - 8%; stony - 1%.

EROSION: 1 - 23%; 2 - 75%; 3 - 2%.

LAND CAPABILITY: II - 13%; III - 70%; IV - 10%; VI - 7%.

SURFACE DRAINAGE: Good; principal waterway - 6.8 mi.

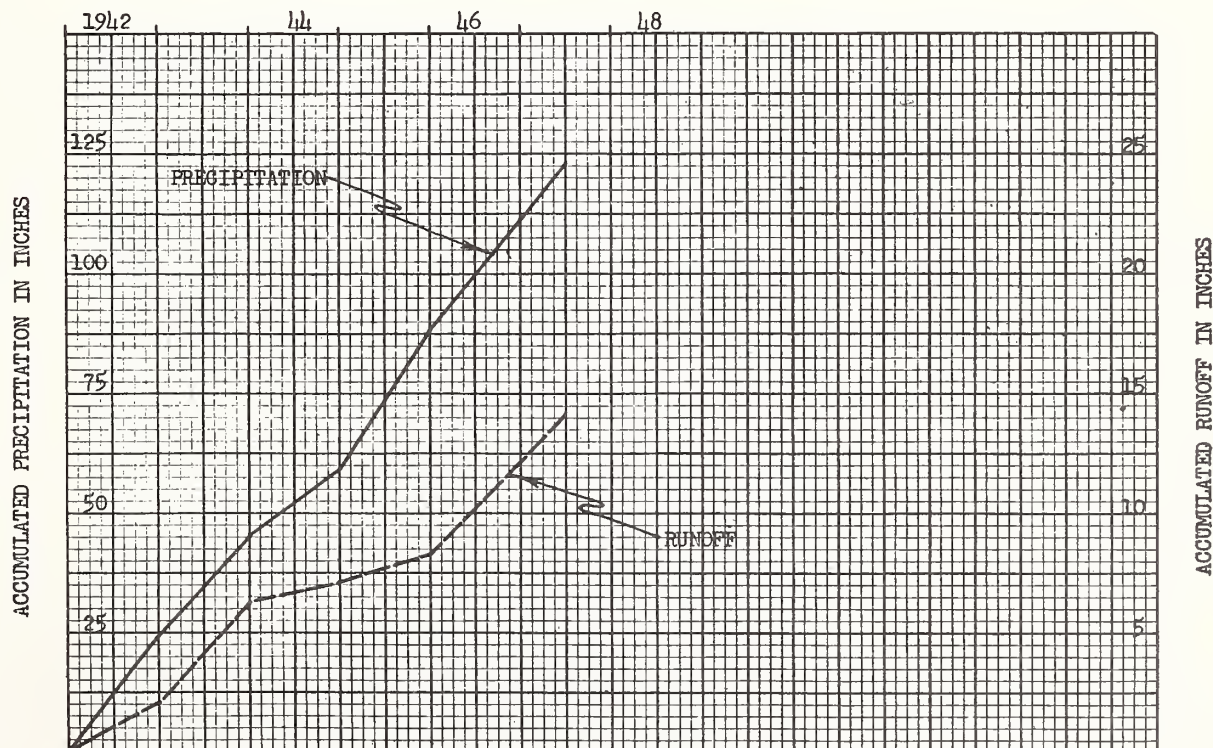
CHARACTER OF FLOW: Surface-fed intermittent, continuous.

INSTRUMENTATION: Runoff - broad crested V-notch weir; precipitation - standard and recording rain-gages.

WATERSHED CONDITIONS: Agriculture typical of region. Main crops were wheat and peas; a small amount in seeded pasture of alfalfa and grass. A state highway runs approximately parallel to the main waterway; culverts were adequate to handle the flow without excessive pondage.

GENERALLY REPRESENTS: Annual cropping areas of the Palouse Area - Nez Perce Prairies and Blue Mountain Foothills. (Limited to eastern Whitman and Walla Walla counties and central Garfield and Columbia counties in Washington and western Latah County in Idaho).

ACCUMULATED PRECIPITATION AND RUNOFF



Cooperative Research Project of USDA and Washington Agricultural Experiment Station

### MONTHLY PRECIPITATION AND RUNOFF (Inches)

Pullman, Washington, Watershed G.S.-10

<div>Month Year</div>	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1941 P Q							0	0	0	0	.05	.42	.47
1942 P Q	1.33 .34	1.52 .58	1.60 .42	1.28 .06	3.38 .07	1.79 .01	.95 T	.05 0	.67 0	2.92 T	5.05 .04	4.04 .60	24.58 2.12
1943 P Q	2.43 .47	1.43 2.22	3.13 .85	1.74 .45	1.69 .14	2.18 .05	.56 T	.55 0	.35 0	3.57 T	1.41 .01	1.68 .03	20.72 4.22
1944 P Q	.80 .04	2.76 .15	.60 .57	2.62 .10	1.06 .01	1.21 T	0 0	.73 0	.83 0	.79 0	1.81 T	1.12 T	14.33 .87
1945 P Q	2.90 .08	2.13 .14	3.63 .33	2.19 .17	1.90 .01	1.31 T	0 0	.39 0	3.75 0	.77 0	5.08 .02	4.04 .41	28.09 1.16
1946 P Q	3.68 .81	1.85 1.45	2.61 1.12	1.42 .16	1.27 .02	1.93 T	.27 0	.29 0	1.27 0	3.74 T	3.17 .07	2.74 .11	24.24 3.77
1947 P Q	2.87 .68	1.17 .91	1.93 .28	1.60 .18	.28 T	2.95 .05	.35						11.15 2.10
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** Av. P ** Av. Q	2.23 .35	1.94 .91	2.31 .66	1.85 .19	1.86 .05	1.68 .01	.36 T	.40 0	1.37 0	2.36 T	3.30 .03	2.72 .24	22.38 2.44
Normal P	2.76	2.16	2.08	1.41	1.57	1.38	.52	.60	1.14	1.74	2.81	2.82	20.99

Notes: \*\* Does not include the part year amounts for 1941 and 1947. Normal P based on average of W. B. stations at Pullman, Moscow, and Colfax for period 1893-1955 and Experiment station gage 1931-1955. Quality of records: P - good, Q - excellent.



**LOCATION:** Platt Co., Ill.; 5 mi. S.W. of Monticello; Sangamon River, Illinois River, Mississippi River Basin.

**AREA:** 82.0 ac.

**SHAPE:** Fan shaped, 1700 ft. radius, length of aro, 3500 ft.

**SLOPES:** 61% is in 0-1-1/2% class; 38% in 1-1/2-4%; 1% in 4-7%. Aspect SE.

**SOILS:** Loessial over glacial till; topsoil - medium textured, medium granular structure, moderately deep (11-18 in.); subsoil - medium silty clay loam texture, weakly developed fine blocky structure, moderately permeable; internal drainage - medium. Flanagan silt loam - 69%; Drummer silty clay loam - 17%; Sunbury silt loam - 8%; Catlin silt loam - 6%.

**EROSION:** 1 - 100%.

**LAND CAPABILITY:** I - 60%; II - 40%.

**SURFACE DRAINAGE:** Good, principal waterway - 2000 ft.; main waterway has two branches, each draining about half the area; narrow blacktop road, 2300 ft. long, N-S across west half of area; culvert capacities small; tile drains under main waterways discharge below weir.

**CHARACTER OF FLOW:** Ephemeral, continuous.

**INSTRUMENTATION:** Runoff - 16" broadcrested concrete weir with 5:1 side slopes, continuous water stage recorder; precipitation - 2 recording and 1 standard gage.

#### WATERSHED CONDITIONS:

	Year	Crop Cover - Percent of Total Area						
		Corn	Soy Beans Wheat	Clover	Oats	Meadow	Grass	Roads
The common rotation on these fields is corn,	1949	19.3	0.4	13.2	23.0	26.5	14.4	3.2
soybeans, wheat, sweet	50	13.6	19.3		11.5	38.0	14.4	3.2
clover; or, corn, oats,	51	38.4	13.6		19.3	11.1	14.4	3.2
2 years alfalfa-brome	52	23.0		13.6	38.4	7.3	14.4	3.2
meadow.	53	40.1				42.2	14.4	3.2
	54	7.3	32.8			42.2	14.4	3.2
	55	57.6		13.6		11.1	14.4	3.2

**GENERALLY REPRESENTS:** Cultivated areas of the Iowa-Illinois Deep Loess Drift Area having medium internal drainage, good surface drainage and moderate erosion found principally in northern two-thirds of Illinois.

#### ACCUMULATED PRECIPITATION AND RUNOFF



Research Project 10-312, Agricultural Engineering Department, University of Illinois, in cooperation with USDA.



**MONTHLY PRECIPITATION AND RUNOFF (Inches)     Monticello, Ill., Watershed IA**

Year \ Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1949 P							4.77	2.67	2.23	7.57	0.63	4.33	22.20
Q							T	T	T	.36	0	.79	1.15
1950 P	5.92	4.09	1.68	4.27	1.29	4.39	2.42	1.95	2.58	2.03	2.04	.79	33.45
Q	1.52	* .32	0	.09	0	.02	0	0	T	T	T	T	1.95
1951 P	1.57	5.06	2.80	4.18	3.09	5.55	5.47	5.41	2.91	2.65	.90	1.62	41.21
Q	.30	1.18	.12	.17	.03	.54	.94	.12	.01	T	.04	.01	3.46
1952 P	1.71	1.38	3.50	5.17	3.72	5.11	1.71	2.86	1.49	1.24	2.83	1.25	31.97
Q	.05	0	.08	.87	T	T	0	0	0	0	0	0	1.00
1953 P	1.54	1.84	6.57	1.28	1.61	5.02	3.20	1.16	.56	1.94	.56	1.35	26.63
Q	0	0	.48	0	0	T	T	0	0	0	0	0	.48
1954 P	1.33	1.01	1.60	4.31	1.54	1.43	2.65	5.97	.46	3.94	.49	1.46	26.19
Q	0	0	T	T	0	0	0	T	0	0	0	0	T
1955 P	2.86	2.44	1.36	3.26	4.48	3.97	4.03	.95	2.82	8.92	1.70	.29	37.08
Q	0	T	0	0	.33	.13	.01	0	0	.91	T	0 *	1.38
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** Av. P	2.49	2.64	2.92	3.75	2.62	4.24	3.25	3.05	1.80	3.45	1.42	1.13	32.76
** Av. Q	.31	.25	.11	.19	.06	.12	.16	.02	T	.15	.01	T	1.38
Normal P	2.30	2.04	3.40	3.73	4.16	3.98	3.14	3.24	3.76	3.00	2.46	2.23	37.44

Notes: \* Partially estimated. \*\* Does not include part year amounts for 1949. Normal P based on 62 yr. record (1894-1955) at Decatur, Ill. Months of Jan., Feb., and March include snow and snow melt. Quality of records: P - excellent; Q - excellent.

LOCATION: Piatt Co., Ill., 5 mi. S.W. of Monticello; Sangamon River, Illinois River, Mississippi River Basin.

AREA: 45.5 ac.

SHAPE: Crescent, about 850 ft. wide by 2300 ft. long.

SLOPES: 80% is in 0-1-1/2% class; 20% in 1-1/2-4%. Aspect S.

SOILS: Loessial over glacial till; topsoil - medium textured, medium granular structure, moderately deep (11-18 in.); subsoil - medium silty clay loam texture, weakly developed fine blocky structure, moderately permeable; internal drainage - medium. Flanagan silt loam - 58%; Drummer silty clay loam - 39%; Thorp silt loam - 3%.

EROSION: 1 - 100%.

LAND CAPABILITY: I - 76%; II - 24%.

SURFACE DRAINAGE: Good; principal waterway - 2300 ft.; tile drains under main waterway discharges below weir.

CHARACTER OF FLOW: Ephemeral, continuous.

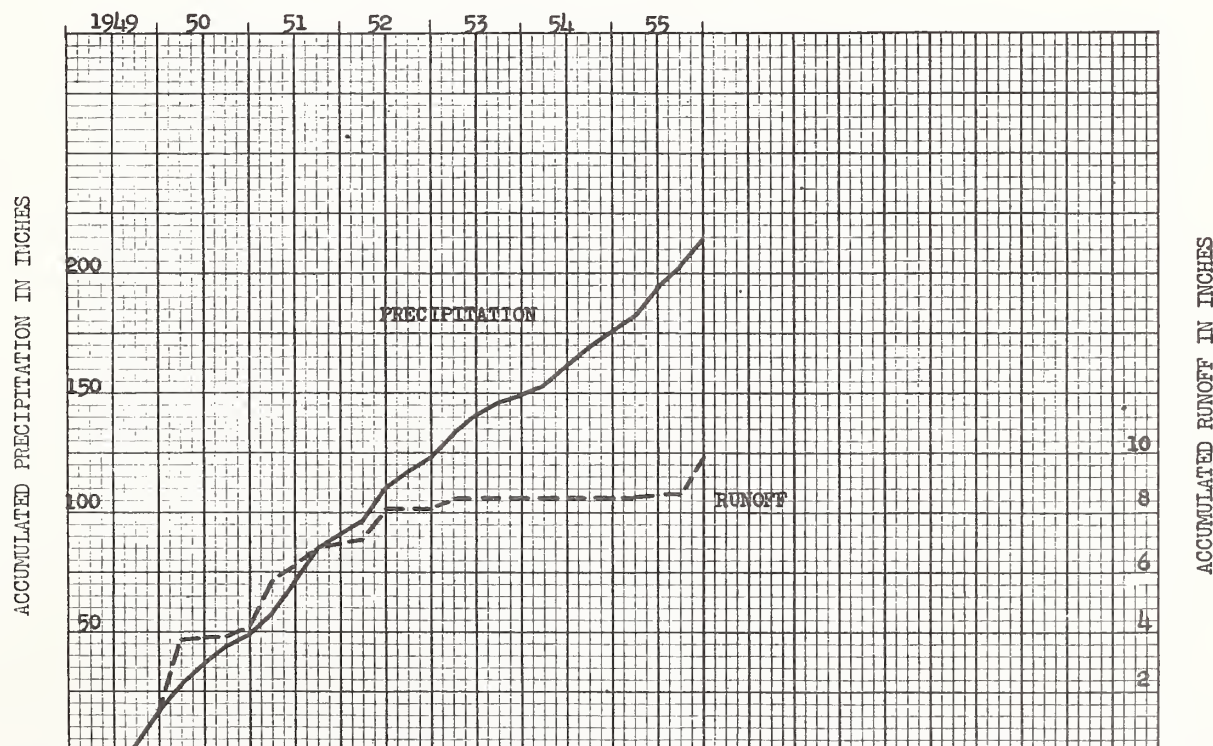
INSTRUMENTATION: Runoff - 16" broadcrested concrete weir with 5:1 side slopes, continuous water stage recorder; precipitation - recording gage.

WATERSHED CONDITIONS:

	Year	Corn	Crop Cover - Per cent of Total Area				
			Soy Beans	Clover	Oats	Meadow	Grass
The common rotation on these fields is corn, soybeans, wheat, sweet clover; or, corn, oats, 2 years alfalfa-brome meadow.	1949			Wheat			
	50	21.4	21.4		47.0	31.0	0.6
	51	5.8	23.5			54.5	0.6
	52	44.1	21.4			72.2	0.6
	53	49.5		21.4	5.8	28.1	0.6
	54		21.4		28.1	49.9	0.6
	55	5.8		21.4		72.2	0.6

GENERALLY REPRESENTS: Cultivated areas of the Iowa-Illinois Deep Loess Drift Area having medium internal drainage, good surface drainage and moderate erosion found principally in northern two-thirds of Illinois.

ACCUMULATED PRECIPITATION AND RUNOFF



Research Project 10-312, Agricultural Engineering Department, University of Illinois, in cooperation with USDA.

**MONTHLY PRECIPITATION AND RUNOFF (Inches) Monticello, Ill., Watershed IB**

Month Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
1949 P									2.53	7.88	0.65	4.61	15.67
Q									.03	.44	0	.86	1.33
1950 P	5.92	4.09	1.58	4.19	1.31	4.42	2.35	2.04	2.63	2.10	2.04	.79	33.46
Q	2.00	.09	.34	.07	T	.01	T	0	T	T	T	.31	2.82
1951 P	1.57	5.06	2.80	3.98	3.11	5.64	5.49	5.42	2.91	2.64	.92	1.66	41.20
Q	.34	1.18	.01	.21	.04	.21	.63	.02	T	T	.04	.09	2.77
1952 P	1.75	1.37	3.55	5.26	3.62	5.13	1.61	3.03	1.76	1.26	2.83	1.24	32.41
Q	.07	0	.07	1.05	.01	.01	T	T	0	0	0	0	1.21
1953 P	1.58	1.93	6.56	1.30	1.60	4.97	3.42	1.26	.57	1.91	.56	1.35	27.01
Q	0	0	.36	0	0	.01	.01	0	0	0	0	0	.38
1954 P	1.33	1.01	1.57	4.08	1.56	1.55	2.56	5.99	.42	3.86	.49	1.36	25.78
Q	T	0	T	T	T	T	T	T	0	0	0	0	T
1955 P	2.86	2.44	1.36	3.36	5.19	4.03	4.15	.96	2.79	8.80	1.70	.28	37.92
Q	T	.02	T	T	.02	.06	T	0	0	1.18	T	0	1.28
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* Av. P	2.50	2.65	2.90	3.69	2.73	4.29	3.26	3.12	1.85	3.43	1.42	1.11	32.95
* Av. Q	.40	.22	.13	.22	.01	.05	.11	T	0	.20	.01	.07	1.42
Normal P	2.30	2.04	3.40	3.73	4.16	3.98	3.14	3.24	3.76	3.00	2.46	2.23	37.44

**Notes:** \*Does not include part year amounts for 1949. Normal P based on 62 yr. record (1894-1955) at Decatur, Ill. Months of Jan., Feb., and March include snow and snow melt. Quality of records:  
P - excellent; Q - excellent.









# PROBLEM AREAS IN SOIL CONSERVATION

Locations of Small Agricultural Watersheds

COMPILED BY THE AGRICULTURE RESEARCH SERVICE

